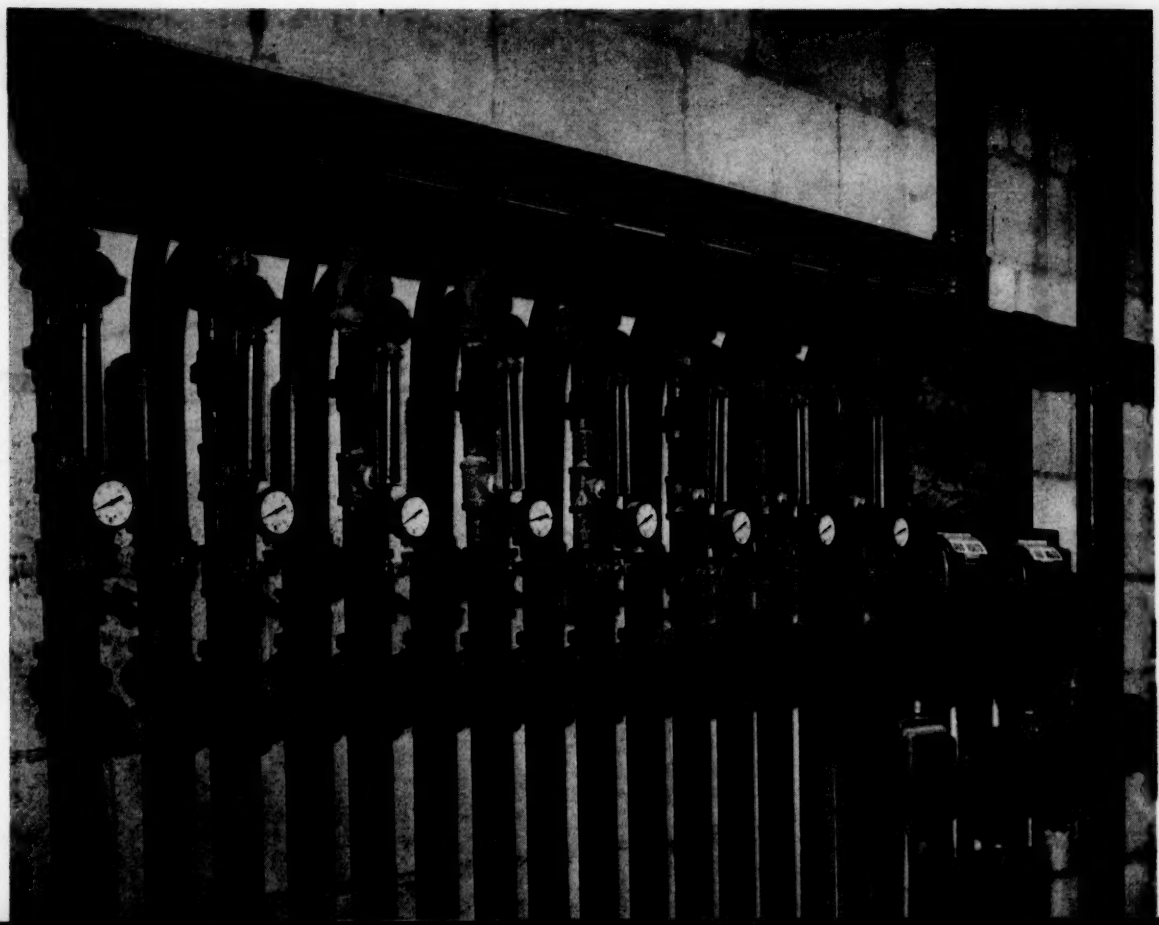
INDUSTRIAL REFRIGERATION

MARCH
1959

Vol. 136 No. 3

Serving the Industrial Refrigeration and Air Conditioning Industry

Flow and Return Headers For Heated Light Oil Circulation System Which Provides Frost Heaving Insurance For Wholesale Grocer Firm

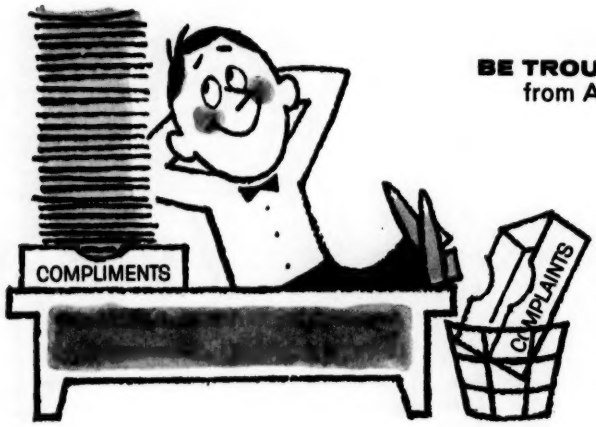


MARCH—Bought lower grade ammonia at bargain price on supplier's vague quality claims . . .

LATER—Moisture in ammonia . . . expansion and float valves frozen . . . flow hindered and then stopped . . .

STILL LATER—Oil film on evaporators and condensers . . . heat transfer reduced. Head pressure and power costs up . . .

TOO LATE—Plant slowdown. Efficiency off. Operating costs up . . . and profits down . . .



BE TROUBLE-FREE! Buy the trouble-free ammonia from Armour—purest money can buy!

ARMOUR AMMONIA DIVISION

1355 West 31st Street • Chicago 9, Illinois

Quality ammonia from the most distribution points . . . 171 cylinder stock points, 12 bulk stations!

How to Cut Refrigeration Costs and Increase Capacity with Better Purging

If you don't have an Armstrong Purger, chances are your head pressure is 10 to 40 lbs. above theoretical—because all the non-condensables are not being removed from your system. Have you checked your pressure lately?

Remember, for every 4 lbs. excess head pressure, power costs go up 2% and capacity goes down 1%. You can quickly figure how much inefficient purging is costing you.

Your head pressure will *always* be within a couple of pounds of theoretical with an Armstrong Purger. It rids your system of air with almost no loss of refrigerant.

Here is what this means to you:

Lower Power Costs
"Power costs cut 20%"—Rubenstein & Son Produce, Inc., Dallas, Texas.

Increased Capacity
"Compressor capacity increased 10%"—Gulf Oil Corporation Wax Plant, Philadelphia, Pa.

Less Refrigerant Used
"$500 annual ammonia saving"—Howard Johnson Ice Cream Mfg. Plant, Baltimore, Md.

Less Cooling Water Needed
"Cooling water consumption cut in half"—Producers' Dairy Company, Brockton, Mass.

Time and Labor Saved
"Can take care of other duties while purging is going on"—engineer at Alta Vista Creamery, Forth Worth, Texas.

Safety and dependability are assured by the design of the Armstrong Purger. Its forged steel construction can withstand over 2000 lbs. hydraulic pressure. Working parts are stainless and heat-treated chrome steel.

30-DAY TRAIL OFFER

You can try an Armstrong Purger for 30 days and if you are not completely satisfied you can return it for a full refund.

SEND FOR FREE BULLETIN

Bulletin No. 2212 tells . . . How air in your system raises operating costs... Why efficient operation requires controlled purging ... How the Armstrong Purger operates ... Design features of the Armstrong Purger... Specifications and prices... Specific benefits enjoyed by present users.

To get your free copy, just fill out and mail coupon.

Armstrong Machine Works
8602 Maple Street, Three Rivers, Michigan

Please send me a free copy of Bulletin No. 2212.

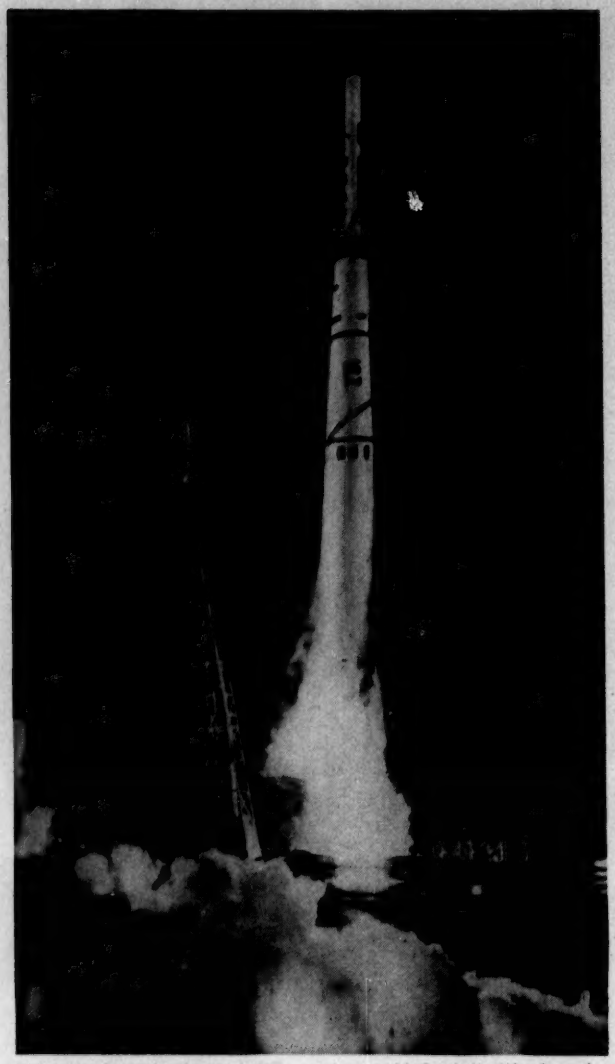
Name_____

Company_____

Street_____

City_____ **Zone**____ **State**_____

In missiles and millinery shops, movies and map centers . . .



Rising slowly on a column of flame, a giant guided missile lifts from its launching pad. Air-conditioning plays an important part in the manufacture and assembly of missiles by protecting intricate parts against temperature and humidity variations.

You'll find

genetron®
SUPER-DRY REFRIGERANTS

Filling the Air-Conditioning and Refrigeration Needs of Modern America

In thousands of different air-conditioning and refrigeration applications, you can count on "Genetrons" for top performance. These refrigerants are universally accepted for use as original or replacement charge. Leading manufacturers, refrigeration engineers and air-conditioning and refrigeration wholesalers approve, specify and recommend them. They offer unexcelled quality and dryness . . . and their strict specifications are consistently *bettered* in production.

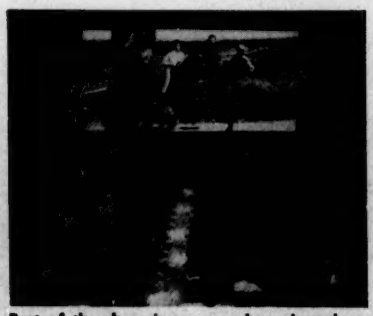
"Genetron" Super-Dry Refrigerants are available from wholesalers everywhere, coast to coast. See your wholesaler. Ask for "Genetron"!

genetron 11 ORANGE LABEL CCl_3F TRICHLOROMONOFLUOROMETHANE
genetron 12 WHITE LABEL CCl_2F_2 DICHLORODIFLUOROMETHANE
genetron 22 GREEN LABEL $CHClF_2$ MONOCHLORODIFLUOROMETHANE
genetron 113 PURPLE LABEL $C_2Cl_3F_3$ TRICHLOROTRIFLUOROETHANE
genetron 114a BLUE LABEL $C_2Cl_2F_4$ DICHLOROTETRAFLUOROETHANE

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.

No fuss—but plenty of feathers as milady tries on one hat after another in her air-conditioned millinery shop.



Part of the show in our modern American movie theatres is comfortable air-conditioning. Movie managers have learned that the "air-conditioned" sign on a theatre marquee is good for business.

At the Army's map service center, Kansas City, Missouri, this 100-ton refrigeration unit helps control temperature and humidity. The paper, plastic and film used in map-making require precise temperature and humidity control. *The Trane Company Photo*

March 1959

Number 3

Vol. 136

Industrial Refrigeration

Now in its 67th Year of Publication

H. T. McDermott
Editor and Publisher

J. R. Kelahan
Managing Editor

H. D. Busby
Associate Editor

ADVERTISING
O. Rhodius Elofson, *Director*
Edw. Davieson, *Representative*

Helen B. Smith
Secretary

E. P. Swanson
Subscription

V. S. Smith
Production

Official Organ
National Association Practical Refrigerating Engineers

INDUSTRIAL REFRIGERATION, Vol. 136, No. 3. Published monthly at 433 N. Waller Ave., Chicago, Ill., U.S.A., by Nickerson & Collins Co. Yearly subscription in the U.S., $2.00 per year; other countries, $3.00. Single copies, 25 cents. Copyright 1959 by Nickerson & Collins Co. Acceptance as controlled circulation publication at Chicago, Ill., and Pontiac, Ill.

CHANGE OF ADDRESS—Notify publisher and your local post office promptly of change of mailing address to avoid non-receipt of copies. Copies incorrectly addressed, because of failure to notify publisher, cannot be replaced. Upon request, post office will provide, without cost, convenient "change of address" mailing cards.

Industrial Refrigeration is indexed regularly by Engineering Index, Inc., and is microfilmed for library use by University Microfilms.

Contents

Dependable Mechanical Refrigerator Cars 6

After several years of development, a division of United States Steel indicates that it is more convinced than ever of the accuracy of a survey by their Witte Engine Works; that mechanically refrigerated railroad cars for the transportation of our nation's low and medium temperature commodities, are here to stay and will expand greatly in the future.

New Chicago Distribution Warehouse 11

Two more cooperative grocer firms opened warehouses in Chicago late in 1958 which included refrigerated facilities. Centralla Foods plant is described by Scott Cassell.

Is It, Or Isn't It, Frozen Foods? 15

Is it, or isn't it worth temperature protection? Frozen Foods, that is. "Dutch" Diehl asks the questions, and then proceeds to answer them. He points out why certain segments of the industry are encouraging legislation on temperatures, but points out the self-policing efforts of other links.

More On Frozen Foods 17

Truckers strive to obtain an optimum set of standards for handling refrigerated food stuffs. A manufacturer introduced indicating and recording controllers for perishable transportation vehicles. Frozen food packers consider AFDOUS Code.

Railroads Sponsor Thirteenth Perishable Conference 18

Purdue University is host to National Conference, Mar. 10-12.

Two Private Warehouses Utilize Unique Plants .....18 & 19

New York Apple Storage uses air condensing. Philadelphia frozen food distributor employs outdoor units with patented defrost application.

Poultry Institute Learns More On Liquid Freezing 19

Canadian Member of the Institute of American Poultry Industries reported on three years of liquid freezing at the recent convention held in Kansas City, Mo.

Departments

Press Briefs	4	TRRF	36
NAPRE	20	Literature	37
Industry Meetings	28	Question Box	38
Ice Industry	32	Manufacturers News	40
Research	34	Personnel	41
Warehousing	35	Classified	43

Cover: Regulating Manifold for Floor Heaving Insurance. ▶ Gauges on liquid heated floor system indicate presure of light oil used to prevent frost formation beneath Central Foods Freezer. Oil enters circuits at 50 F. Story on Page 11.

Published Monthly by NICKERSON & COLLINS CO.
General Offices: 433 N. Waller Ave., Chicago 44, Ill. Teles.: AUstin 7-1303-04-05

news briefs of the month

International Congress of Refrigeration

Copenhagen is the location and August 19 to 26, 1959 is the date of the 10th International Refrigeration Congress. There will be 26 lectures in all, ranging from "Experience In Operating Mechanically Refrigerated Railway Trains in the U.S.S.R." to "The Method of Thermodynamic Analysis of Low Temperature Rectification of Binary Mixtures".

Leasing Plan For Air Conditioning

Special package lease plan for the refrigeration and air conditioning industry was announced by a Chicago firm in mid-February. The lease plan permits users to acquire necessary refrigerating equipment for air conditioning their premises, without capital investment. Any combination of equipment may be considered one package and leased as a unit.

Standards Participation

Established last September at the International Organization for Standardization meeting in London, England, was the objective of an extensive program for the commercial refrigeration field. The U.S.A. through the American Standards Association Technical Committee 86, has accepted the administrative secretariat for Working Group 1, designated *Refrigerants*, and of Sub-committee 6, *Testing of Factory Assembled Air-conditioned Units*. Technical Committee 86 will be formed from the U.S. National Committee to International Institute of Refrigeration.

Another Civic Plant In Southern California

Construction of the central heating and refrigeration plant at the Bellflower Civic Center is scheduled for completion in June. Plant will house all facilities necessary to provide central heating and refrigerated air cooling in the existing library, health center, judicial courts building and future probation building.

Frozen Foods Exhibition

First Frozen Foods and Equipment Exhibition to be organized on an international scale will be held in Blackpool, England, September 8 to 15, 1959. An attendance of 300,000 visitors daily is expected. The frozen food section of the exhibit is sponsored by a number of British consumer publications, while the equipment section is sponsored by MODERN REFRIGERATION, an English refrigeration publication.

Winterland In Virginia

Progress on a $300,000 winter playground at Hot Springs Virginia will be under the scrutiny of top brass in the U.S. air conditioning and refrigeration field when the Air Conditioning and Refrigeration Institute meets at the Homestead, May 3 to 6. The winter playground plans were announced last Fall by Daniel H. H. Ingalls, president of Virginia Hot Springs, Inc., which operates the Homestead and Cascades Inn. Scheduled for completion December 15, 1959, are a 3,000 foot ski course, outdoor skating rink, toboggan run and ski lodge.

Air Conditioning, $1.25

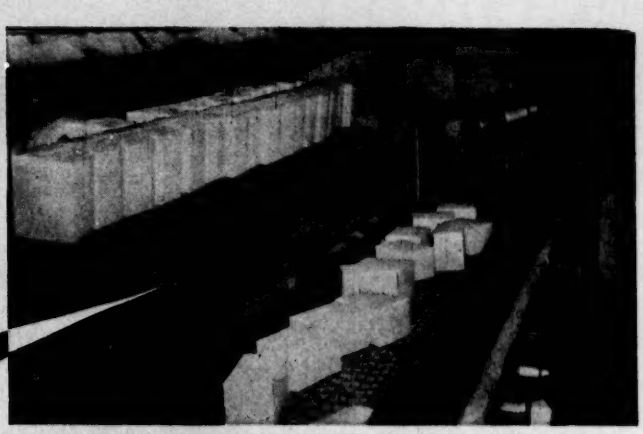
Considerable publicity has been given to a bid by a West Coast contractor on a U.S. Marine Corps housing project at Camp Lejeune, N.C., due to the fact that the contractor has offered to air-condition 800 units at $1.25 apiece. The Navy has accepted the bid from Atlantic Contractors, Inc. a firm owned by Hal B. Hayes, Contractor, Inc. Hayes called his unusual offer of the air conditioning with the basic contract, "un-balanced bidding".

Control Manufacturers Standardize Terminals

Standardization of quick connect terminals for automatic temperature controls is expected as a result of a new standard issued by the National Electrical Manufacturers Association. The new standard calls for quick connect terminals to be ¼-in size for cooling equipment.

FREEZING at −50°

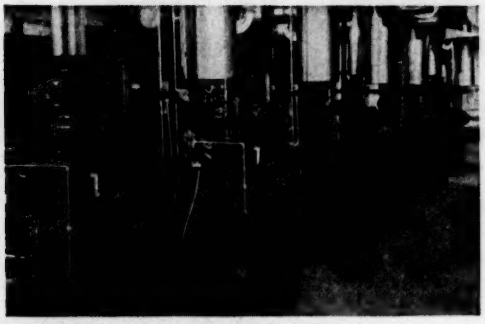
or STORING at −10°



ARCADE FARMS COOPERATIVE, INC., Blasdale, N.Y. In this hardening tunnel, packaged ice cream moves on endless conveyors. Tunnel temperature, minus 50° F. This entire tunnel and much of the plant's other production equipment was engineered by Creamery Package. Shown is discharge end of tunnel.

RALPH'S GROCERY COMPANY, LOS ANGELES. In this 86' x 140' freezer room, frozen foods are stored at minus 10° F. "Push-button" operation of the entire refrigeration system reduces supervision to a minimum. Inset shows exterior, compressor room and loading dock.

Refrigeration Experience, Engineering and Equipment *PAY OFF!*



MILLEDGEVILLE STATE HOSPITAL, GA.
Strong heart for a modern refrigeration system—a battery of CP Type "K" Ammonia Compressors.

Whether it's FAST FREEZING of fresh vegetables, fruits, meats or cooked foods...or sub-zero STORAGE, you get precise freezing control and safe protection for your products when you choose CP Refrigeration.

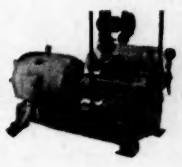
CP engineers offer you the benefits of generations of refrigeration experience—engineering know-how that understands thoroughly the needs of *your* operations—equipment that's planned *right* and built *right* to do *your* job best.

If you are considering new installations or expansion of facilities, get the help of CP planning now.

THE *Creamery Package* MFG. COMPANY
General and Export Offices:
1243 West Washington Blvd., Chicago 7, Illinois
Sales Branches in 23 Principal Cities

Creamery Package Mfg. Co. of Canada, Ltd.
267 King St., West, Toronto 2B, Ontario

CP "VS" Compressors
2- 4- and 6-cyl. models
in cap. from 2
to 30 tons.



THE MARK OF DISTINCTION IN REFRIGERATION EQUIPMENT

By M. E. NICKLIN

Manager, Industrial Sales
Oil Well Supply Division
United States Steel Corp.

DEPENDABLE Diesel Power for MECHANICAL REFRIGERATOR CARS

▶▶▶ PROVIDING a power source for railway mechanical refrigeration became an important need of our economy in the late forties. Frozen food packers in particular, and refrigerated warehousemen and distributors or wholesalers in close second, recognized the importance of non-fluctuating (zero F and below) in-transit temperatures on the quality of this particular perishable. Mechanical refrigeration was the answer; but a reliable power source was one obstacle.

On the basis of an industry-wide survey reaching railroads, car builders and refrigeration equipment builders, it was recognized that an engine with a very special set of specifications was needed, if this market was to be successfully served. Accordingly in 1949, the design of a 2-cyl. horizontally-opposed diesel engine of 100 cu. in. displacement was developed. This engine was designated the Witte Model "100".

Prime considerations in developing this engine were to produce a heavy-duty, dependable, diesel engine, simple in construction, quiet, vibrationless and economical to operate. The approach to this market was made to provide what was needed in a fresh, new, specialized product, which would advance the cause of food transport. The reaction to Witte's offering has been good.

Ice Cars Credited

It is proper here to acknowledge the fine job done by ice refrigeration on the railroads and to compliment the industry on the strong part it has played in conditioning the public palate to variety, quality and flavor in fresh foods. The effect which ice refrigeration in transport of foods has had on our way of life will always be an economic milestone.

Factors Favoring Mechanical Refrigeration

We have witnessed the change in homes from ice to mechanical refrigeration, so the transition in transport to mechanical refrigeration is easy to understand. Nevertheless, there must have been strong factors of sufficient importance to justify the change. The following points are in favor of mechanically refrigerated railway cars:

a. Competitive mechanically with truck transport refrigeration.
b. All-purpose (fresh or frozen) service.
c. Straight-line temperature maintenance.
d. Humidity control.
e. Cooling and heating facility with one power source.
f. Elimination of salt water corrosion to equipment, bridges, etc.
g. Decreasing of in-transit time.

The above features were readily apparent to NAPRE members, many of whom operate stationary refrigeration plants for the purpose of providing ice for refrigerator cars.

So far, the subject has been treated in a general manner, but we should not go farther without calling attention to the other half of the team: the refrigeration machinery. The elements are essentially the same as those in the simple compression system of the commercial or industrial application. The small diesel manufacturer enters the picture to supply necessary power requirements:

(Continued On Page 8)

An information paper presented before the 49th Convention of the National Association of Practical Refrigerating Engineers, Inc., Miami, Florida, Tuesday, November 11, 1958.

▶▶ Much time and attention has been devoted to the important consideration of cost. Initial cost, maintenance cost and cost of fuel go hand in hand. It has been our practice to work closely with both the refrigeration equipment manufacturer and the car builder. While we are concerned with the power plant, a successful harmony of all three parties concerned is essential. In our work with refrigeration manufacturers and the railroads, we have experienced an exceptional degree of cooperation—without which the relatively rapid progress that has been made—could not have resulted. We are particularly anxious to acknowledge this cooperation and understanding.

—M. E. NICKLIN

The Witte Engine Works has been in existence nearly ninety years. Since 1897, Witte has designed and built internal combustion engines. In 1934 it became the first builder of small diesel engines in the United States. In 1944, the Witte Engine Works became a part of the Oil Well Supply Division of the United States Steel Corp. Following this, an accelerated expansion and improvement of its line of gas, gasoline and diesel engines was initiated.

Railroading Considerations

LOST

space in your building

FOUND

with

KRAMER

OUTDOOR COMPRESSOR

Why lose dollar-making storage and selling space to house compressors, when you can now use the Kramer Outdoor Compressor? The THERMOBANK COMPRESSOR SYSTEM is factory assembled, tested and run-in; it saves installation time and money.

The refrigeration industry again finds Kramer blazing a new path with its THERMOBANK SYSTEM—the original and only automatic re-evaporating, non-overloading, fastest hot gas defrost system—now engineered to perform unfailingly, not only in a heated space but in any unheated space or outside at any outdoor temperature.

WRITE FOR BULLETIN TC 406A

KRAMER TRENTON CO. Trenton 5, N. J.

45 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

(Continued From Page 6)

test. Every precaution is taken to

Railroading Considerations

Plants-on-wheels pose the problem of proper power selection suitable for a railroad freight car installation. Such a choice must consider:

a. Suitability for railway service.
b. Dependability.
c. Safety.
d. Simplicity.
e. Ease of maintenance.
f. Low fuel consumption.
g. Low running cost.
h. Low noise level.
i. Low incidence of vibration.

Taking several of the points separately:

a. The railways are already well indoctrinated in diesel engines for head end service. Service facilities are already available and personnel is trained to handle diesel prime movers.

b. Diesel engines have demonstrated their dependability in many services, including railroad locomotives, to pull heavy loads continuously, efficiently and with minimum attention. Such qualities are a must where costly carloads of produce must be unfailingly protected.

c. As contrasted to gasoline or gaseous fuels, diesel fuel oil can be safely transferred from one container to another and is not subject to *explosion*, should a car be derailed or involved in a wreck.

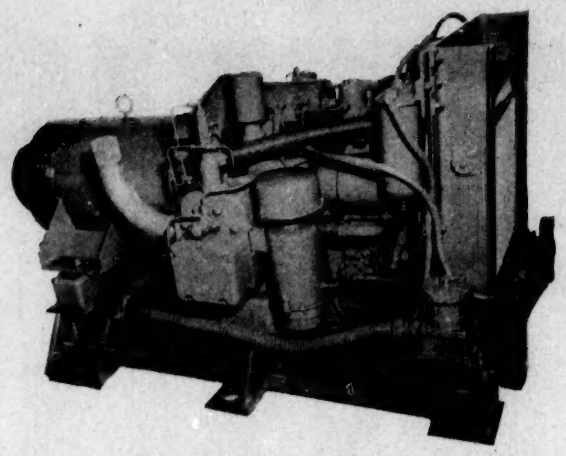
d. A diesel engine does not have spark plugs, spark plug wires, distributors or magnetos, points or condensers, or carburetors. To burn fuel to produce power, it needs only a fuel pump and nozzle. Rain, snow or moisture from the atmosphere do not affect it or cause "shorting out" and engine failure. Only infrequent attention is needed to keep a diesel running.

e. Maintenance is easy and consists principally of supplying sufficient fuel oil, lube oil and cooling water. A diesel engine should operate for 15,000 to 20,000 hours before major overhaul. In railway mechanical refrigeration service, this is four to five years.

Basic Specifications

The diesel engine-generator unit specification developed from Witte studies are as follows:

1. Adequate output (not oversize) to operate refrigeration car equipment of 5- to 10-TR capacity in either 40- or 50-ft zero cars, as well as all-purpose or high temp (30 to 70 F) cars. A two cylinder, 4x4-in engine design of 18 hp (1800 rpm), short stroke, is adequate but not oversize, to permit minimum fuel consumption.



View from the right side of the mechanical railway car diesel generator unit illustrates the features of this type power plant, such as the special fuel system.

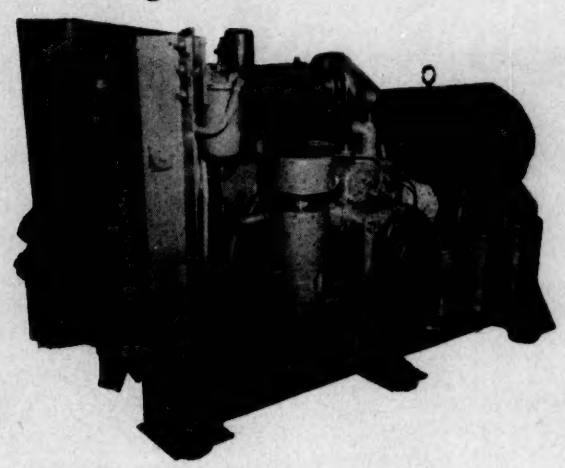
2. Generator capacity of 12½ KW (continuous rating) pulls the compressor load, condenser and evaporator fans and defrosting equipment with ambient temperatures up to approximately 110F. at pull-down.
3. Low center-of-gravity, utilizing opposed cylinder construction for inherent balance and minimum engine vibration and offering maximum protection against in-transit shocks and "humping". Heavy duty shock-mounts on the unit skid use six one-inch diameter hold-down bolts to fasten the unit securely to the car floor. Center of gravity of the unit is only inches off the car floor.
4. Minimum weight without sacrifice to sturdiness and dependability.
5. Easy accessibility to all vital parts:
   a. Governor, with fuel injection pump—3 nuts to remove from top of engine.
   b. Lube oil pump—mounted on outside of crankcase.
   c. Gear type, gear driven, fuel oil transfer pump mounted on side of crankcase.
   d. Lube filters mounted on aisle side of engine.
   e. Fuel filters on front of unit.
   f. Start and Stop controls reached from ground level.
   g. Lube oil sight gage—readable from ground, outside of car.
   h. Drainage of lube oil from crankcase accomplished from ground, outside of car.
   i. Fuel injection nozzles exposed for easy access. Removal of two nuts permits inspection, test or changing of nozzles.
   j. Internal inspection of engine possible by removal of large plate at top of engine.
   k. Electric starter on highest point of engine—held in place by three studs.

Refinements from Research

The foregoing specifications were basic for the railway mechanical refrigeration requirement. Further refinements and developments were made following extensive laboratory research and tests in actual service on the road. These include:

1. Extended lube oil life and capacity, for engine to operate 1200 hours before adding or changing oil, approx. 4 trips coast-to-coast.
2. Lube oil filters—one full flow filter for filtering all lube oil to engine moving parts. Two additional filters (by-pass type) continually clean the engine lube oil.
3. Radiator cooling system, having an extra large capacity to adequately permit full load operation at 150 F. ambient temperature. Fan is completely guarded to prevent accidents.
4. Simplified, automatic, safety shut-down in case of excessively high water temperature or low oil pressure. The hydraulically-operated device completely eliminates electrical battery circuits and complex switching arrangements. The only electrical circuit on the engine is the starting circuit.
5. Since it was discovered in actual railway service that air often was admitted to the car's fuel system due to in-transit loosening of undercar connections, Witte designed an auxiliary fuel supply system which incorporated a day

(Continued From Page 6)



Left hand view of the 12½ kw diesel-generator unit further emphasizes the low profile, rigid supports, heavy duty shock mounts and accessibility of important parts.

tank. The latter provides a means of automatically removing all air from the system and furnished a static head of fuel free of air to the injection pump at all times. Thus, when the engine is shut down after delivering its load, fuel is retained in the day tank assuring quick starting without priming, regardless of elapsed time until next starting.

6. A large, conveniently-placed, visual, oil level gauge was located on the front of the engine to permit instant check of the lube oil level in the engine oil sump without stopping the engine.

7. During pre-tripping, it is important to minimize points to check on the units as a time-cost saving. Witte supplies a brushless generator to increase savings and improve performance. Not only is approximately one-half hour of time saved on each car thirteen times per year by eliminating inspections, but also whatever labor and materials would be required due to brush and commutator wear. This latter condition can be an expensive factor when refrigerator cars operate under excessively dusty and abrasive conditions.

8. Battery-charging rectifier (taking power from the main generator), now in development stages, will eliminate battery charging generator, voltage regulator and driving belts.

Build Failure Out

During the course of each trip and throughout its lifetime, a refrigerator car loaded with cargoes valued at–say $20,000–clears a great number of terminals, interchanges and checkpoints. Supervision of clearances at widely scattered areas will be in charge of many individuals, oftentimes under a multitude of trying conditions. Unfortunately, not every man who is watching over the cargo along the way, can be an expert. The logical answer, then, is to provide each car with equipment that is as fool-proof as possible; to "build failure out" of the equipment.

Lube Oil Importance

One of the important factors is the lube oil supply for the engine. At the request of customers, sufficient oil capacity is provided in the Witte engine to last for four trips across-country without addition or change. The Witte design also provides sufficient oil filter capacity to last for the four cross-country trips. This is important, in that during such a period of 1200 hours, the car will probably be returned to its home base or line, and can be serviced by trained mechanics. This 1200 hour period is equivalent to the operation of an automobile for about 40,000 to 50,000 miles of road travel without an oil change, addition of oil or changing of filters.

Paralleling the long-run feature of the lube oil system and all-round dependability of the prime mover is the factor of long life. When an engine can operate over long periods before major overhaul, there is justifiable confidence that it will give trouble-free performance. Basic design must be sound, materials must be of top quality, manufacturing practices must be precise, with quality control through rigid inspection from the beginning through assembly and test. Every precaution is taken to assure that each engine can be depended upon to give unfailing performance in refrigerator car service.

Research and study of wear patterns taken from engines after thousands of hours in actual service have shown that the Witte Model "100" diesel engine should not require major overhaul until 15,000-20,000 hours of continuous service. Records show that engines in refrigerator car service run approximately 4,000 hrs/yr, which means that the overhaul period should fall about every four to five years.

When that time arrives, the unit can be taken from the car by simply removing six hold-down bolts and disconnecting the fuel lines, electric starting circuit, power outlet and exhaust line. It is a simple operation to skid or lift the unit from the car and slip a reworked or overhauled unit into its place, and thus keep the car in almost continuous operation.

Overhaul Considerations

Witte's engine has been designed to offer easy and inexpensive serviceability with its replaceable wet-type cylinder liners, precision-type, replaceable bearing shells, replaceable valve seats and valve guides. Gaskets and seals are simple and easily replaced. Accessories and components are easily reached, and grouped into assemblies wherever possible, to bring the item of labor cost down to a minimum and to give the mechanic the satisfaction of being able to turn out a high-quality, finished job.

The major overhaul work can be done in the shops of the car company or railroad where mechanics are trained under manufacturers supervision. If preferred, the work can be done at an authorized service station or other reliable engine overhaul organization. Once an engine goes through such a rework schedule, it can be expected to give another 15,000-20,000 hours of reliable service, since all wearing parts will have been replaced.

Proper care of the engine is expertly taught by manufacturer's instructors who are available to users at key points. The training program thoroughly covers engine construction and servicing.

Operating Cost Figures

Fuel represents about one-third of a mechanically refrigerated car operating cost. Consequently, a major project has been to keep fuel consumption to a minimum. Before the introduction of the Witte Model 100RDA 12½ KW unit, the accepted engine for railway mechanical refrig-

eration was rated at 34 hp and 20 KW. Fuel consumption of this unit ran from 1.1 gal/hr to 1.25, whereas the Witte unit showed a figure of .81 to .9 gal/hr.

In some cars an even larger engine developing 25 KW consumes 1.5 to 2 gal/hr in a car rated for all-purpose service. Assuming that the Witte engine could save a half-gallon of fuel per hour over a 4,000-hr year of service, this would represent a saving per car of $360 yearly. In a fleet operation of 1,000 cars upward, the yearly saving is substantial.

Fuel Quality Large Factor In Operating Economies

Fuel quality selection can also be a large factor in cost of operation. Witte diesel engines will run satisfactorily on either number 1 or number 2 fuels; the latter being in the class of most diesel locomotive fuel. When the number 2 fuel is used throughout the year, a saving of 1c to 2c/gal decreases the cost of operation substantially for a large fleet of cars; plus the convenience of using the same fuel as the locomotives.

Pre-cooling To Stay

The severest requirement of a power unit is, of course, when a "hot" load of fresh produce is taken into the car at ambient temperatures of 100F. and above, and the temperature must be reduced to 30 or 40F. Once down, the temperature can be easily maintained to destination of the load. Precooling of the load is desirable where the main job of the engine is to maintain a straight line temperature during transport and offers the greatest economy of fuel. The same applies where a pre-frozen load is placed in a car and the temperature held at minus 10F. to destination.

Heating By Diesel

The mechanically refrigerated car is designed to meet the extremes of temperature and maintain a predetermined temperature within a narrow band of about two degrees F. Under conditions of extremely low ambients, heat must be added to the circulated air within the car. This heat can come from reverse cycling of the refrigerant, the engine cooling water, or from an electric heating coil taking power from the main generator. Recognizing that an even control of temperature is necessary for food quality, diesel powered refrigeration offers the flexibility for heating or cooling as required, from a single source of fuel.

Engine Design Factors

The need for a small power plant for refrigerator cars posed a decision as to what type of engine would best meet requirements. Witte decided the following would govern:

a. *Simplicity*: Multi-cylinders (4 or 6) are not needed and only add to the number of parts and service attention required.

b. *Low center of gravity*: Due to the buffeting which is inherent in a rail unit, much thought was spent in designing a heavy-duty engine: one which would not be torn loose from its mountings due to humping and heavy shocks in-transit. The Witte Model "100" engine has a center of gravity close to the crankshaft centerline and the engine is supported within 6-7/8-in of the crankshaft center. The two horizontally-opposed cylinders place the engine mass very close to the car floor. Low mass, plus six extra-heavy shock mounts, make a combination not attainable by other engine designs.

c. *Balance*: The horizontally-opposed design gives an extremely smooth-running engine without complicated balancing means. The crank-throws are 180° apart and, since the engine is a four cycle design, there is a power stroke at each revolution of the crankshaft. The reciprocating parts: connecting rods and piston assemblies, move in the same relation to each other throughout each stroke so the forces which normally would cause engine vibration are cancelled out at their sources.

This type small Diesel engine contributes a practically vibrationless source of power. Perishables in ripened condition, where the car would be on siding for a long period awaiting unloading, could conceivably be "shaken" down or "compacted" by a rough running engine which would shake the car.

Quiet operation is becoming more and more important for future consideration in building refrigerator car fleets.

Noise Elimination Objective

Mechanically refrigerated cars will probably never be as quiet as ice cars, largely because of the fan noise from the condenser and the engine radiator. Noise from the engine itself can be minimized by additional planning and study. The engine compartment can be redesigned and treated for noise absorption to the point where it will not be considered "sleep-disturbing" when the car is operated in confined areas.

Exhaust noise has been diminished now to where it is the least objectionable sound factor in the application. Part of this can be credited to the four cycle design which can stand more exhaust back pressure from muffling than can a two cycle engine. The Witte unit running at 1800 rpm with 1800 explosions per minute is quieter than a two stroke cycle engine running at 1200 rpm exhausting 2400 times per minute.

Witte's engine designers continue to work closely with the car manufacturers to reach the ultimate in quiet operation, thereby permitting mechanical car to be spotted on any siding in a residential area over a week-end without creating an objectionable disturbance.

Direct-Mechanical Aims

The majority of the equipment in some 3500 mechanically refrigerated cars is of the electro-mechanical type, where standby operation can be had by simply plugging into a 220 volt, 3 phase commercial power outlet. In the case of many direct-mechanical systems, the engine is directly connected to the compressor without the standby feature. In such applications, the engine must not stop while the car is carrying a pay load. In one instance, a Witte Series "100" engine has been driving a direct-mechanical unit on an all-purpose refrigerator car in service for approximately 18 months with very good results. There will be many more of these units accepted and in operation soon.

Non-Refrigerated Perishable Boxcar

▸▸ CANADIAN National Railways recently tested a new type of boxcar for the handling of perishable freight in winter. The new car is not the refrigerator type and is equipped with only a heating unit. Refrigerating equipment and heavy insulation is omitted.

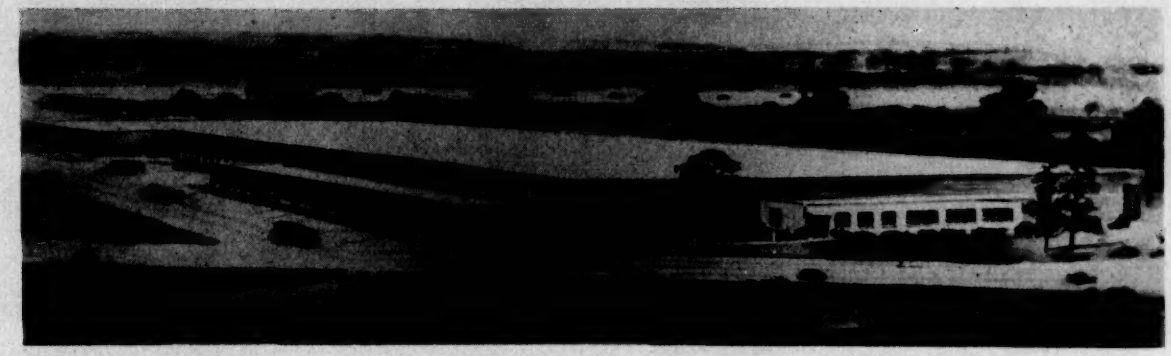
Thirty more tons of product were carried per car in the new type unit as compared with 22½ tons general handling in the refrigerated car. Prototype heater cars were loaded with potatoes in the test operation, and left standing in the siding at Montreal for a week-end in sub-zero temperatures.

During the test, temperatures inside the car remained at 40 F. According to the FINANCIAL POST, Toronto, if further tests pan out, the new cars may replace refrigerated cars for winter shipment of fresh fruits and other vegetables.

TWO LARGE REEFERS SERVE 400 MEMBER RETAILER CO-OP

Centrella Foods

By SCOTT CASSELL
Chicago Correspondent
Industrial Refrigeration



New Chicago Distribution Warehouse

▶▶▶ REFRIGERATION is always a vital consideration in every food storage depot. To supply retail food stores with the freshest possible produce, meats and temperature-protected frozen foods for consumer use, equal to handling and transportation. The freezer-cooler system installed in the recently constructed modern Central Grocers Co-operative warehouse in Franklin Park, Illinois is similar to a number of distribution operations systems installed in recent years. However, some of its refinements may well set the pace for other installations in the future.

At a cost of $1,750,000, the architecturally pleasing new 243,000 sq. ft. building was planned with an eye to providing 400 member-grocers daily with frozen foods, meats and refrigerated dairy products in the finest condition for their customers. The warehouse was located in the Chicago suburban area, handy to expressways and super-highways so that a fleet of properly refrigerated trucks could speed the orders to stores in Illinois, Indiana, Wisconsin and Michigan with great rapidity and with the least possible delays from local city traffic congestion.

Warehouse Layout Speeds Retail Order Filling

The warehouse itself is divided into eight sections, each of which contains its category of items in an alphabetized order; with six of the sections housing grocery items and one section each for drugs and cigarettes. Warehouse lift-trucks are used to keep the stock bins filled and move completed orders to trucks. Order pickers work fast as a result of the stock arrangement, "walk-along stackers" and specialized personnel assignments.

Executive Interest In The Refrigerating Plant

Known for his progressive thinking William A. Cassin of Central Grocers Co-operative specified certain qualifications and characteristics for the refrigerating system during the planning and construction of the new warehouse. He particularly required the latest development in multi-stage compression theory. Accordingly, Theis Refrigeration Co. (Chicago), designers and installers of the eighty-one ton system, included many newer developments for improved efficiency and safety.

The ground level refrigerated space, which occupies nearly 23,000 sq. ft of the warehouse, includes among its equipment items automatic refrigerating units with self-defrosting controls, subdivided compressing units, temperature warning devices (each monitored by an outside service) and a liquid floor heating system.

Equipment for the system includes two 60-hp York high stage compressors, two 25-hp York booster compressors, 14 Krack automatic electric defrost unit coolers, an intercooler, liquid receiver, thermostats and control panels for the unit coolers and compressors.

One Refrigerant Source Serves Freezer and Cooler

Both the cooler room and the freezer room receive refrigerant grade ammonia from the same high pressure source and return it to a mutual low pressure receiver. Each room is equipped with its own refrigeration units to achieve the required temperature.

The freezer room, where all types of frozen foods are stored, is equipped with eight ceiling-hung Krack refrigeration units to maintain a room temperature of 0 to minus 10 F. Each unit is capable of delivering 7,100 cfm of air and absorbing 4,760 Btu/1F TD/hr with two blowers which operate from a single 1½-hp electric motor. This frozen foods storage is 170x105x18-ft. Walls and ceiling are insulated with Fiberglas AE-Board to a depth of eight inches and are finished with a cement plaster. Doors are by Butcher-Boy Refrigerator Door Co., Harvard, Ill.

The cooler room, where dairy products and canned hams are stored, is equipped with six ceiling-hung Krack unit coolers to chill the room temperature to 40F. This is also accomplished with motor driven blowers to move the chilled air. The cooler is 150x33x18-ft with the same type insulation of five-inch depth on the ceiling and of a four-inch thickness on the walls. It is also finished with a cement plaster. Insulation applicator was Cork Insulating Co., Chicago, Illinois.

Freezer Room Units Defrost Without Shutdown

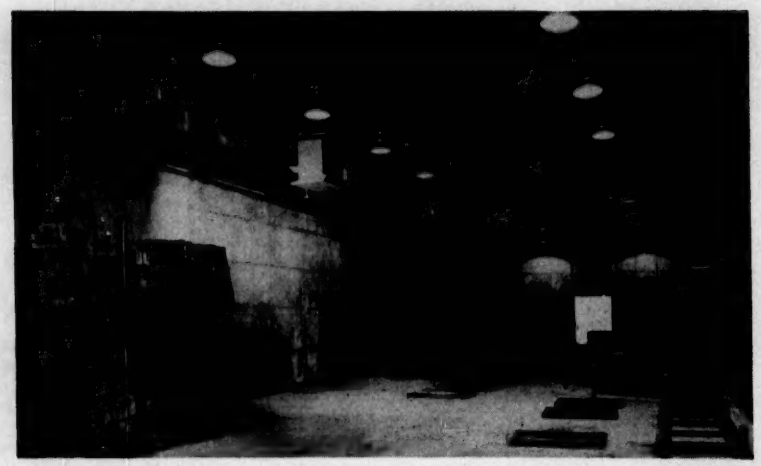
One of the outstanding features of the Refrigeration Appliances, Inc., units used in the freezer room is that of automatic defrost without complete shutdown of the system. With an over-all control which permits only one unit to defrost at a time in a cycle sequence, each unit is defrosted once every day to assure greatest refrigeration efficiency.

Each unit begins its defrost when a mechanical timing switch closes the unit door and, simultaneously, a solenoid valve closes off the refrigerant liquid line. When the insulated, weather stripped door approaches a

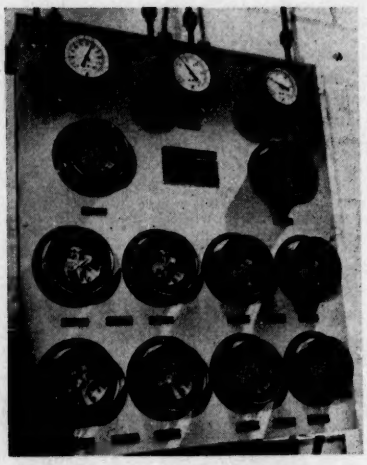
TWO LARGE REEFERS SERVE 400-MEMBER RETAILER CO-OP.

Above, freezer storage rooms at Central Grocers Cooperative, Chicago. Automatic electric defrost refrigeration units are mounted facing in opposite direction in alternate bays in order to effect an adequate circulation pattern.

At right is a close-up of a typical unit. When the unit goes into defrost cycle, the door swings shut automatically sealing the interior of the insulated unit. The heat from the electric grids pictured melts the ice and frost on the coils which drains off through the piping pictured. A Phillips' pilot operated float control feeds the liquid ammonia to the accumulator pictured at right.



This view is taken in the cooler room at Central Grocers. First load of Polish canned hams is being placed in storage and the shelves in erection process. The room is also used for holding butter, cheese and such products.



Gauge board and control panel located in compressor room. Mercoid switches control system operations.

Storage specialist, E. E. Wilson, demonstrates the electro-pneumatic door openers at the new Centrella installation. Remote switch for operation of the doors is placed on a pipe stand at shoulder height. The pipe stand in turn is anchored in a large pail filled with concrete and connected with suitable length of extra tough waterproof dual conductor to a marine type outlet adjacent to the door. The remote station can thus be moved about the platform where it is manipulated by fork lift operators.

The fixed switch controlling this door is located on the panel directly behind Wilson who is pointing in the direction in which the super-freezer overlap door is swinging at the moment the photo was taken. The door is equipped with fully automatic defroster. Note the drip leg, shut-off valve and blow-down vent in air supply at each door.

closed position, another switch energizes coil heaters on the face of the unit. Defrosting is accomplished within the closed unit by means of fan circulated warm air which is prevented by insulation from dissipating into the freezer room.

After a given time for defrost, the heaters are deenergized, the door is opened, the liquid line is reopened and the refrigeration cycle is resumed, with the next unit in the defrost cycle then being defrosted. In this way each unit is defrosted but the seven other units maintain the freezer room temperature within range.

Compressor Duplication

One feature of the Central Grocer Co-operative (Centrella brands) installation is the division of compressor equipment into two independent operational units. The main objective of this division was for spoilage protection of foodstuff in the event of a major compressor breakdown which might otherwise leave the warehouse without refrigeration. It also serves as an alternate plant for use in the time involved for servicing the equipment. By this arrangement "standby" refrigeration protection is made available at all times.

It is also possible, to operate the system on a single stage basis when less-than-peak capacity is adequate. This is wise planning too, for there are times when total capacity may not be needed.

Failure Warning Devices

In order to provide as secure an operating safety factor as possible, especially when the plant is unmanned from 5 p.m. to 8 a.m., Central installed a series of thermostats which have connections to leased wires with the downtown offices of a professional watch service. If the temperature in the freezer room (or in the cooler room) should rise, even unnoticed, to a dangerous point—the thermostat operates a warning light in the office of the watch service and someone is immediately sent to investigate.

Floor Heating System Prevents Freeze Damage

Included in the construction of the new warehouse is the relatively more popular development in floor heating—liquid circulation through pipes which are imbedded under the sub-floor (see cover illustration). Since one of the problems of all ground level installations has always been the penetration of cold and dampness which eventually cause floor-buckle or foundation break-up, some provision had to be made in the Central warehouse to prevent this damage. After careful consideration the recirculated liquid method was adopted.

In this type of construction the flooring consists of four layers. The visible part is a three-inch layer of finished concrete with a seven-inch layer of built up insulation beneath. Below this is another four-inch layer of concrete, and under that is a 12-inch layer of gravel. Running through the gravel is a grid of corrosion resistant iron pipe which extends the length of the room at 30-inch intervals. A lightweight oil is constantly circulated through the pipe, entering the grid at about 50F and returning to a pump some 13F cooler. It is reheated and recirculated to prevent damage to the flooring in the warehouse.

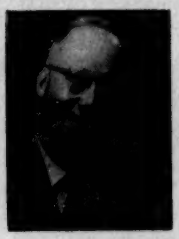
Warehouse Leadership

Heading up the operation of Central Grocers Co-operative, Inc. is President William A. Cassin. He has been a part of the organization for many years climbing the ladder from bookkeeper to clerk, order taker, shipping department, secretary, vice-president and treasurer to reach his present position. Another important personality in the organization is Lt. Col. Earl E. Wilson (USA, retired) who is Special Assistant to the President. Col. Wilson, an expert in the handling of food for the U. S. Army, has done much to expedite efficient operation and handling within the organization through his knowledge and wartime logistics experience in food storage and shipping. Walter Riddle is plant engineer.

MacVeagh Warehouse On Chicago Outskirts

▶▶ OLDEST wholesale grocery in Chicago, Franklin MacVeagh & Co., opened another modern food supply depot for the Chicago area in January. The firm is a franchised Independent Grocers' Alliance wholesaler for the Chicago area. The new warehouse has 4-1/2 acres under roof, all on one floor. It will accommodate 12 railroad cars for inside unloading.

Refrigerated facilities include a 60x120-ft meat cooler, and two dairy and frozen food refrigerators of over 7,000 square ft each. Another refrigeration application is the small condensing unit for maintaining an even temperature on an automatic accounting, billing, ordering and receiving business machine which will keep a perpetual inventory on the 5,000 items to be carried.



THIS . . . , "Dutch" Says, . . . happens infrequently today.

Ice cream producers, distributors and dealers recognize the product's specific refrigerated environment.

Frozen Foods are similar in their temperature maintenance demands!

▶▶▶ IF ONE WERE TO ASK any responsible person concerned with any phase of frozen food business "Is it absolutely necessary to give proper temperature-protection to frozen foods?", the reply doubtless would be in the affirmative; with very likely the volunteered addition, "In fact, it's got to be zero or below".

Packers Haste

One wonders then why that undeniable fact is being so often ignored during the last few years. When a packer offers frozen foods for loading in a transport vehicle at a product temperature of plus 20F to 25F, and presumably expects the rail or motor vehicle to lower the product temperature enroute, **one wonders.** Or, when a packer accepts obviously unsuitable transport equipment on some sudden decision that the merchandise must be moved regardless of what happens enroute, **one again wonders.**

Carrier Indifference

When a motor carrier operator or driver decides that surrounding a frozen foods load in transit with a blanket of refrigerated air isn't really too important, and places the cases against the wall or directly on the extruded aluminum floor (which very efficiently transmits heat from the road and tire), **one wonders.**

Warehousemen Know Better

When a warehouseman doesn't give temperature-protection to frozen merchandise as loaded or unloaded, **one wonders.**

Distributors Cut Corners

When frozen foods are delivered by station wagon in summer temperatures, **one wonders.** When frozen chocolate eclairs are loaded in a non-refrigerated trailer, with TV sets and arrive at the warehouse at 67° F. product temperature, **one not only wonders,** but one might even have something of a fright from a public health standpoint.

Retailers' Neglect

When retailers neglect temperature-protection of frozen foods, **one wonders** some more. In fact, like the ruler of Siam in the popular motion picture "The King and I", one is full of puzzlement at this aggregate listless attitude.

Prime Quality Retained Only By Low Temperature

One wonders because the basis of the unique properties of frozen foods rests without question on the low temperature aspect of the preservation method. Certainly, no one in his right mind, would argue against that fact.

The facts of life have to be faced regardless of whether they are, or are not, pleasing. The current overall retardation in the rate of sales growth of frozen foods, or at least quite a few of them, is a present fact of life—a temporary one, we all hope.

Many factors contribute to this unpleasant situation, and some are difficult to remedy. But one fact is clearly discernible and about that one all of us can do something.

Cause of Retarded Sales

Substantial slow-down in frozen food acceptance is due, without question, to the succession of thoughtless or ignorant actions of commission and omission, some of which are briefly referred to before as a "puzzlement". More consumers than we like to admit are getting fed up with depreciated quality in frozen foods—utterly unnecessary loss of quality—because all of us along the pipe line of frozen foods distribution are becoming careless; each one of us perhaps figuring that our little misdeeds, as we think of them, really won't matter because doubtless the next guy down the line will be more conscious, perhaps.

Did the reader ever hear the phrase "Frozen foods have a memory for mistreatment"? Of course, he has! Kind of smart statement to be thought up by a bunch of Scientists, wasn't it? Does the reader believe it?

Ignorance Is Costly But Continued, It's Folly

Does the reader realize ignoring that fact is presently costing the frozen foods industry a lot of expansion and repeat business? And when we say that, let us realize that everyone is being hurt—packer, carrier, warehouseman, broker, distributor, retailer (and our suppliers of equipment and materials).

We all have a real big stake in this industry. Are we going to squander it by a "let-George-do it!" attitude, when it comes down to giving frozen foods the **absolutely indispensible** temperature that they require?

By
DR. H. C. DIEHL
Managing Director
Trans-American Refrigerated Services, Ltd.

Is It, Or Isn't It, *Frozen* FOOD?

Is It, Or Isn't It, Worth Temperature Protection?

Some Wonder Why Legislation Is Necessary For Public Protection
Others In The Grower-To-Consumer Pipeline Initiate Self-Policing Effort

A lot of us have been doing it and apparently figuring like the cat, because it's all covered up and no one can see it—that no one will know it ever happened. It's not that way, my friends, because the frozen product remembers—**AND HOW!** And after the packer, let's say, has put a lot of effort into getting high quality merchandise packed, then, maybe he also, and the rest of us, start kicking the quality out of the frozen merchandise by doing what we well know we shouldn't do in regard to proper temperature-protection.

But, then, our little kick won't count, of course, just so long as everyone else down the line believes in and practices the right frozen food gospel! But do they anymore than we? It looks as if they don't, if one judges by some of the end results. How foolish can one get to be?

Apathetic Inertia Overcome

Well, one has to break an egg to make an omelet, so Trans-American Refrigerated Services warehousemen started in Summer 1958 to do some looking at product temperatures. (Other alert refrigerated warehousemen did, too, because some of their experience seems to check quite well with ours.) We started reading product temperatures, consistently, on motor carrier deliveries.

Was this done to make a horrible example of our good friends in the refrigerated motor carrier industry? **Certainly not!** But most deliveries to our warehouses are by refrigerated motor transport, public as well as privately owned, and the delivery of the frozen product to our dock is the first contact we have with the merchandise (whether delivered by rail or motor carrier).

After we got started, we reported the results to everybody in the frozen food distribution chain concerned; including top management, if they cared to listen. The basic question to packers was "Do you want your merchandise to arrive with high product temperature, and perhaps defrosted besides?" Of course, none did.

Truckers Most Cooperative

And to the carriers, we said "Look fellows, we're in this with you and many of our basic problems are similar. We are not trying to be smart-alecks or cause trouble for our friends, but we don't think you want this sort of thing to continue either."

And the answer from reputable motor carriers was friendly and cooperative, **and in the affirmative.** A lot of credit is due to these men for the forthright, prompt way in which they took corrective action. Being human as they are, they might have become peeved and said "What do you guys think you are doing, anyway?" **Their action has been a real credit to the refrigerated motor carrier industry.**

We were in the doghouse with some people for awhile, but not for long, when the facts were laid before them. No responsible person who believes in the future of frozen foods, would argue that they should not receive the essential protection, which is the basis of their quality and appetite appeal.

Volume Buyer Sets Example

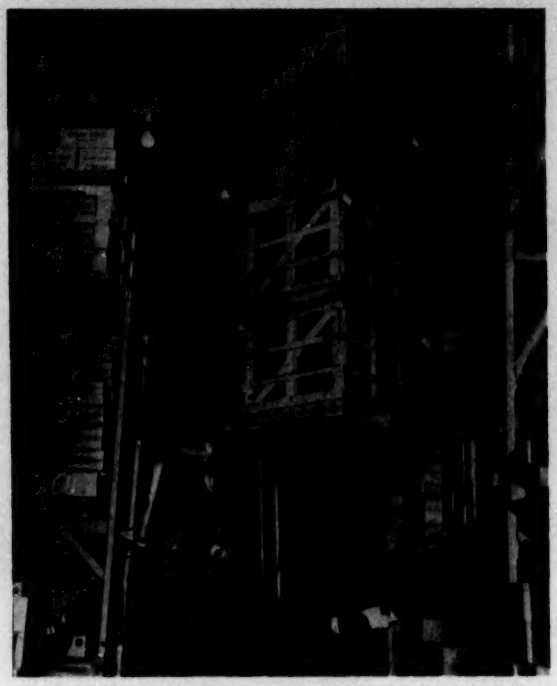
For quite some time, 30% of arrivals last summer and fall showed product temperatures of 10F. or over, Later in the season, conditions improved. Outside temperatures were lower, and doubtless, the corrective actions taken made everyone more careful than they had been. Then, some volume sales organizations became interested in this effort to improve frozen food handling conditions, because as buyers and retailers, they must be interested in frozen food quality.

Recently, one of the food chains—Jewel Tea Co.—has announced that all of its frozen food suppliers and motor carriers (the latter selected specifically because they have concurred in the requirement) have been notified that:—

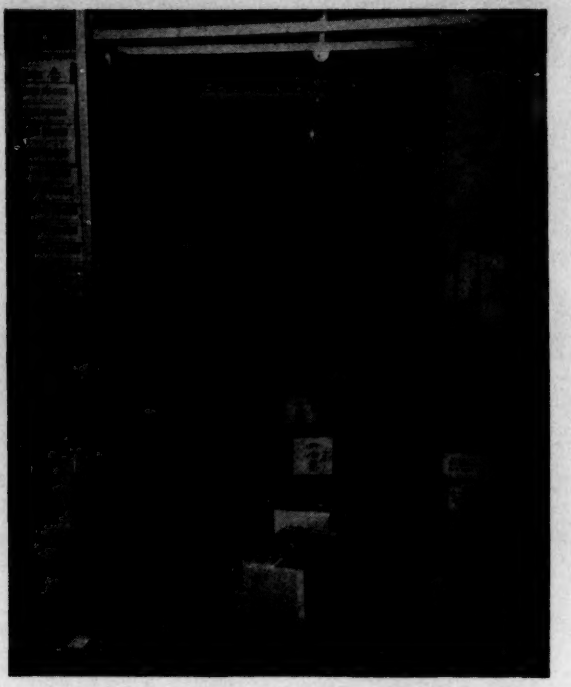
1. All purchase orders now carry the notation "Merchandise must arrive at our warehouse at a temperature no higher than 10F. above zero.
2. Carriers will check product temperatures on loading and are authorized to refuse a load in which the product temperature is higher than 10F.

The communication to frozen food suppliers stated that "we feel this is necessary in order to protect our quality specifications. We will deeply appreciate your cooperation in carrying out these instructions, and remember that when a trucking company refuses to load, it is not the trucker that is refusing it, but the Jewel Tea Company"!

Temperature Protection Retains Frozen Food Taste Quality



Merchandise is high, but temperature is low—minus 10 F. Storage is only one step in the frozen food distribution path where consistent low temperatures must be maintained.



Modern materials handling enables the distributor to make up orders within a low temperature environment, assuring delivery of frozens to the carrier at proper temperatures.

—Photos courtesy of AMS, USDA

Anyone with a realistic understanding appreciates that conditions of commercial operation differ, and so some food chains or retailers may have unique problems in adopting similar instructions. However, so long as the basic principle of proper and adequate temperature-protection for frozen food is adhered to consistently, real progress will have been made.

Temperature-Protection Good Public Relations

One asks only that responsible people in buying organizations will not hesitate to acknowledge, by their concrete actions in issuing instructions for protecting frozen food quality, that they all concur in doing the right thing and doing it consistently. And the buying public is entitled to know that its interest in frozen foods is being protected all along the pipeline. That's mighty good publicity, if it is handled right!

Some few have said that frozen foods are too touchy, if they have to be so carefully handled. This is a statement that has no basis in fact, if relatively simple requirements that are wholly feasible commercially are followed consistently and by everyone. But it requires a personal conviction by everyone that only the right procedure will be used, and finally it will become a habit. No one would say today that ice cream is too touchy a product because it requires specific refrigerated environment to retain quality. We have become used to handling ice cream in a certain way—let's get used to handling frozen foods in a certain way!

Why? Because the American public likes frozen foods. There is an even more vast market potential for them, if, aside from price and other considerations of merchandising, the quality is always the best that we can make it.

Optimum Temperature Is Zero

Gradually, but persistently, we must all move to the optimum goal of Zero F for maximum temperature protection for frozen foods. It takes time for all industry concerned to modify procedures and equipment to achieve that objective, but if the right spirit prevails, it will be done in time.

One can even say that **such a goal must be reached** because the basic requirements for quality retention and public health safety have stimulated a current action, with which we are all familiar, or should be.

There is in progress the creation by the Ass'n of Food & Drug Officials of the U.S., of standard code for frozen foods which will be a guide for Federal and State Officials in the promulgation of future regulations. This code is being prepared with wide industry cooperation (notably through the National Ass'n of Frozen Food Packers) in order that it may be industrially realistic and practicable, as well as properly protective of the public interest.

Does it not seem wise then for all facets of the frozen foods industry "to put their own houses in order" and to manifest, by immediate example, their intention to give the right kind of protection to frozen food quality at all times? Sound regulation will then help the reputable packer, the reputable carrier, the reputable warehouseman and so on down the line to the consumer, who will have confidence in frozen foods at all times, insure quality retention. Such assurance makes for repeat business.

Is participation in such a realistic, self-policing industrial program worth the effort, or isn't it? If this little article has stimulated his thinking, the reader may well be the judge. It seems improbable that the answer can be anything else than **"Yes, it is!"**

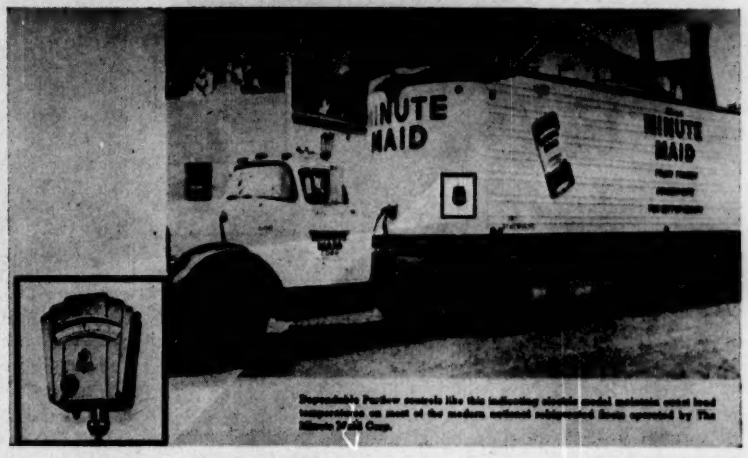
Truckers Pledge TTT Improvements

THIRD on the list of resolutions considered by the executive committee in the American Truckers Association at its 2-day quarterly meeting in Washington, D. C. in January, was a proposal on Time-Temperature-Tolerance of frozen foods. The ATA committee on Transportation of Perishables by Motor Truck had referred the resolution to this executive group. The pledge states that ATA will continue to work on a program to formulate an "optimum set of standards surrounding the receiving, handling, transporting and delivery of foodstuffs requiring refrigeration in transit".

Truck Trailer Makers Hear Report On USSR

ADDRESSING the Truck-Trailer Manufacturers Association at their convention in Hollywood, Florida in January, John A. Stephens, vice-president of Industrial Relations, U. S. Steel Corp., described his 24-day visit to USSR last May and June as Deputy Chief of the United States steel industry delegation. He commented that he saw many trucks in operation throughout the Soviet Union. He did not, however, in his 8,000 mile trip observe any trailers and expressed the view that refrigerated truck or trailer service was not in use.

New Controls Take Guess Work Out of Perishable Transportation



CERTAINTY that frozen foods are maintained at sub-zero temperatures in transit, is achieved through the use of recording controllers. One New York firm realized that fact early and adapted non-indicating and indicating models of refrigeration controls to recording types. Where a recording control is not required, a recording thermometer can be mounted on rail or truck transport to provide the same positive temperature proof.

The recording devices of mercury filled thermal elements, are constructed to withstand internal pressures up to 2,000 psi. Because of this feature the controllers are simple and rugged enough to permit positive operation without additional electrical or mechanical build-up. Thermal elements are easily replaced and interchanged, eliminating any need to return the controls for factory servicing. Readily adaptable to any type of reefer system, these controls are versatile and they can be applied with a multiplicity of switches and switch characteristics to fit almost any type of refrigeration system.

Proposed Frozen Food Code NAFFP Convention Feature

HIGHLIGHT of the 18th Annual Convention of the National Association of Frozen Food Packers to be held in Chicago March 1-5, will be the proposed Frozen Food Code. An exclusive preview of the forthcoming project by the Association of Food and Drug Officials of the U.S., will be presented to the delegates. AFDOUS undertook development of the code in a public interest. Portions of the code are under consideration by legislature and the Congress.

AFDOUS requested cooperation of packers, warehousemen, transportation firms, distributors, wholesalers and retailers in development of a code which will maintain frozen food quality and correct the serious shortcoming in this multi-billion dollar industry. The code of AFDOUS will be previewed at the NAFFP meeting.

Principal Frozen Food Packers goal, according to Lawrence Martin, NAFFP Secretary-Manager, is an increased understanding and cooperation between NAFFP and other segments of the food industry.

Frozen food processors are aware of the fact that they are one link in the important chain that moves the nation's food from the farm to the dinner table. Everyone linked in the chain is trying to do a better job, according to Martin.

Rilea Doe, Vice-President of Safeway Stores, addresses the Chicago meeting. Doe will fill the frozen food packers in on current thinking in the food chain industry about frozen foods and other new developments. Representatives of voluntary and cooperative chains have been asked to participate in the meeting.

New Concentrate

MINUTE MAID Corp. test marketed a new orange juice concentrate recently in Houston, Cincinnati and Syracuse. According to a JOURNAL OF COMMERCE special report, John M. Fox, Minute Maid president, told stockholders that the new concentrate will be marketed throughout the United States during 1960. Approximately 20 percent of the '58-'59 product is scheduled for production by the new technique which was incorporated in a pilot plant production last year.

Frozens Continue Growth

CONFIRMING the continued demand of the American housewife for frozen food and prepared frozen meals, was a recent report of the Super Market Institute. In 1958 new stores averaged 80 lineal ft. of display area for frozen foods, an eight foot gain over 1957. Frozen meat displays averaged 20 lineal ft. In 1947 the meat counter had averaged 18 ft.

ORCHARD LOCATED STORAGE FEATURES AIR CONDENSER

Additional refrigerated storage space for 16,000 bushels of apples was provided at the Beak and Skiff Orchard, Lafayette, New York in 1958. The addition featured a patented rigid steel frame building with corrugated galvanized steel sheeting. In order to insure most efficient handling of fruit during harvest season the new storage building pictured here is located adjacent to the orchard. Storage conditions recommended by USDA Bulletin No. 66 are maintained.

Since there is no water available at the site, a Kramer Unicon air-cooled condenser is installed making the system completely free of water requirements. The Winterstat was provided to maintain head pressure for expansion valve service and rapid hot gas defrosting, with the Thermobank system installed in the shed pictured.

Insulation of this apple storage near Syracuse, New York is with 4-ft. wide batting of fibrous glass insulation, 4-in. thick. Batting has a vinyl plastic backing which forms a vapor barrier. The Coolmaster air handling units pictured feature a patented Ice Coat Control for maintaining constant storage temperature and humidity.

National Conference On Perishable Commodities Again At Purdue

THIRTEENTH National Conference on Handling Perishable Agricultural Commodities will be held at the Purdue University, March 10 to 12. The Conference will include a number of presentations on shipper and carrier problems, and research and development activities. Panels will present short discussions on the various aspects of heavier loading, and the handling of strawberries.

Of the eight presentations on Tuesday, March 10, four have refrigeration considerations. Shipper's problems will be discussed by George M. Talbott, Florida Fruit and Vegetable Association; Carrier Prevention Problems by C. A. Naffzinger, Freight Loss and Damage Prevention Section, AAR; Research Activities in Handling and Transportation, W. T. Pentzer, USDA; New Development in Perishable Transportation, H. R. Hudgens, Jr., Perishable Freight Agent, C B & Q RR.

The Wednesday program will lead off with a panel on heavier loading. Dr. W. T. Pentzer, USDA, is the panelist who will handle the temperature control discussion. That afternoon the Refrigeration of Fresh Strawberries panelist is Walter H. Redit, USDA. Frozen Strawberry panelist is L. Earl Thornton, representing NARW. Thornton is vice-president of Continental Freezers of Illinois, Chicago.

New development discussions on Thursday include Speaker W. R. Bassett, Auction Buyer, Safeway Stores, on the topic of New Development Needed in Railroad Transportation to Meet Today's Marketing Demand. Temperature Controlled Developments will be handled by D. McLeod, Preco; Mechanical Research Developments by G. H. Newcomer, AAR.

The Conference, an annual affair on the Purdue Campus is sponsored by the School of Agriculture and the Agriculture Extension Service, Association of American Railroads, and American Railway Development Association; in cooperation with Western Weighing and Inspection Bureau, Railroad Perishable Inspection Agency, Southern Weighing and Inspection Bureau, and Trans-Continental Freight Bureau. The Chairman of the Conference is B. C. Brandenburg, Agricultural Agent, C & NW Ry. T. B. Bell, AAR is National Secretary.

Freezer From Cooler At Marshfield, Wis.

COMPLETION of a cooler to freezer conversion at the Marshfield plant of Wisconsin Cold Storage Co. will enable the firm to handle an additional half million pounds of frozen food. Object is to expand freezer accommodations for a chain group and wholesalers in Central Wisconsin, according to this TARS affiliate.

Two Government Decisions Effect Rail Transportation

REFRIGERATED rail transportation received the attention of two government activities, one in the regulatory field and the other in the Tax Courts in January. On the complaint of frozen food shippers the Interstate Commerce Commission is now looking into contractual charges made for the use of mechanically refrigerated cars. These shippers contend that the rates for such units are unrealistically based on what they claim to be a more costly ice type refrigeration tariff.

In the U.S. Court of Claims, it was ruled that the Federal Transportation Tax does apply to extra services provided by the railroads in handling food stuffs in transit. Specifically, the ruling referred to icing and salting of refrigerator cars. The Court reversed its earlier decision that food shippers could be refunded transportation tax.

SUBURBAN DISTRIBUTOR EQUIPS WITH OUTDOOR UNITS

Simplication is said to have been achieved in connection with a condensing system for the new 60,000 square ft freezer addition to Rotelle, Inc., plant at Springhouse, Pennsylvania by splitting the high side into two systems. Kramer Thermobank outdoor type condensing units are installed on each side of the building as pictured above. This installation obviated requirement for a machinery room although the lean-to structure adjacent (top photo) was required for an emergency power diesel generator set.

Interior view of the 100x60x12-ft high freezer which is capable of holding 30 carloads of frozen foods at minus 5F. The Rotelle firm distributes approximately 6 million pounds of such foods annually. Four Thermobank evaporators are suspended from a Stran-steel supported roof deck and are faced in opposite directions slightly off a back-to-back arrangement in the center of each half of the 2-bay structure. Board form insulation was applied to the concrete block walls in vapor barrier cement and finished with a hard coat. Storage floor is elevated to truck level. Operation is non-palletized, the frozen merchandise being placed on floor gratings to prevent heat transfer.

New IAPI Officers

▶▶ OSCAR A. DAY of Wilson & Co., Chicago, was elected Board Chairman, Institute of American Poultry Industries at the annual meeting of the Board of Directors in Kansas City, Mo., Feb. 12. The Directors also elected W. B. Loucks, Wadley & Co., New York City, First Vice-chairman, and Dean Olson of Olson Brothers, Inc., North Hollywood, Second Vice-chairman. The following officers were re-elected: Harold M. Williams, President, Wm. F. Priebe, Jr., secretary-treasurer, and Opal Ream, assistant secretary-treasurer.

Liquid Freezing – Its Cost, Application

▶▶ CONVINCED–after three years' investigation–that liquid freezing has become necessary to increase the sales appeal of turkeys, Saskatchewan Co-operative Creamery Assn. Ltd. installed units in two plants. That's what Douglas Brownlow, SCCA, Ltd. on Feb. 14, 1959, told the Institute of American Poultry Industries' 30th Fact Finding Conference, Kansas City, Mo. Four months and several million pounds later they are satisfied that the results have justified their investment.

Tank capacity at SCCA is about 9,000-lbs/hr of turkeys. Brownlow said they have a better colored product to sell; almost no seepage in the bags; a lower labor cost; use a less expensive carton, and have less rigorous working conditions for their freezer staff. These Canadians get more efficiency out of their compressors because–for finish freezing–they now operate blast freezers at minus 15 F with medium air movement.

Initiate Tray Operations

Brownlow says his firm has used liquid freezing on chicken and fowl with equally good or better results. They have experimented on Cryovaced tray-pack cut-up chickens. That presents some problems they have not yet solved, but the appearance of the liquid frozen product has more consumer appeal.

Continuous crust-freezing, as a part of the processing operation, is the only practical method when handling any volume according to Brownlow. However, unless there is an adequate freezer nearby where processor can place crusted birds within an hour, the poultry firm is asking for trouble.

E. J. Brach Adds To Plant and Warehouse

▶▶ ONE OF the nation's leading candy makers, E. J. Brach & Sons, Chicago, has announced construction of a new 200,000 sq. ft. candy making facilities. Additional controlled temperature warehouse space will be included. The new structure will be six stories and designed for additional floors to be added, according to COMMERCE, Chicago.

Super Valu Buys Wisconsin Marts

▶▶ MINNEAPOLIS headquarters of the Super Valu Stores, Inc., acquired five Wisconsin Supermarkets, two in LaCrosse, one each in EauClaire, Richland Center and Viroqua at the start of the new year. The Wisconsin stores were formerly operated by a LaCrosse firm.

Super Valu announced simultaneously the establishment of a corporate chain store subsidiary which will be responsible for the operation of all corporately owned stores which now number eleven. Super Valu services about 600 other independent stores in eight states.

Grand Union Company Keeps Adding Supermarts

▶▶ EIGHT new supermarkets were opened by the Grand Union Company in January. Four of the new supermarts which opened on Wednesday, January 28, were in new areas of residential growth. They are Plattsburgh and Hudson Falls, N.Y., Keene, N.H., and Carol City (Miami) Fla.

All markets are air-conditioned and feature Food-O-Mats, a gravity fed service unit which dispenses thousands of food items, including refrigerated products such as meat. Two more were opened in Ridgefield, Connecticut, and Peru, New York, February 18 bringing to 474 the total Grand Union retail outlets.

Practical Refrigeration Engineer

EXECUTIVE OFFICE

National Association Practical Refrigerating Engineers
433 N. Waller Ave., Chicago 44, Ill.

Officers

President: Roy T. Burns
Detroit, Michigan
Vice-Presidents:
John N. Mariakis, Chief Engr.
Hotel Sheraton—Dallas, Texas
M. E. Bell, Professional Engr.
LaPuente, Calif.
Falconer Anderson, Chief Engr.
Olympia Brewing Co., Washington
S. Milton Rambo, Plant Engr.
Consumers Corp., Lancaster, Pa.
Secretary: J. Richard Kelahan
Nickerson & Collins Co., Chicago, Ill.
Treasurer: Quaid Minich, Chief Engr.
Seaboard Terminal Refrig. Co.,
Jersey City, N.J.
Sgt.-at-Arms: Louis W. Howat, Owner
The Howat Co., New Orleans, La.

Board of Directors

Chairman: Leland Kenagy
Kansas City, Kans.
Eugene Rytlewski, Refrigeration Engr.
City Products Corp., Chicago, Ill.
George Paulick, Asst. Chief Engr.
California Consumers Corp.,
Los Angeles
C. W. Sullivan, Chief Engr.
Lowensteins Dept. Store,
Memphis, Tenn.
John G. Muller, Vice-pres.-Engineering
Railways Ice & Service,
Kansas City, Kans.
Tom Weatherford, Jr., Chief Engr.
Texas Meat, Inc., Dallas, Texas
Frank L. Chase, Chief Engr.
Hibernia Bank Bldg.,
New Orleans, La.

Roy T. Burns	J. R. Kelahan
M. E. Bell	Quaid Minich
John N. Mariakis	L. W. Howat

All refrigerating engineers are invited to affiliate with the National Association of Practical Refrigerating Engineers, Inc., an educational association, "not-for-profit".

From the President's Desk

Burns Names Advertising, Editor Staff for NAPRE Annual

Roy T. Burns

▶▶▶PRACTICAL ENGINEERS while being very realistic about their own occupations, are quite often impractical with regard to their avocations. Perhaps NAPRE could have this label applied in connection with the Association's activities in certain areas, such as publications.

Depend On Professors

Realizing that professional and practical engineers are not as competent as those persons trained professionally for the education field, the Association has for years solicited the assistance of outstanding educators interested in the refrigerating field. With the help in the past of such persons as Dean W. O. Woolrich, the late Professor H. G. Venemann and others, and today with the guidance and assistance of Dean Harold P. Hayes and Professor Guy R. King, courses of practical instruction are generally made more effective. Without the help of these educators who know how to train and teach, it is doubtful that the NAPRE program would be half as effective.

Turns to Professionals For Annual Publication

Therefore for 1959, NAPRE has selected a professional advertising and publication house to produce the OPERATING DATA BOOK. In the past, the Association has attempted to handle this Annual through a committee effort. With the additional after-working-hours-demand on an engineer's time to keep abreast with technical developments, such a publication plan has not proved feasible.

Further, one of NAPRE's educational objectives is to develop practical men into technicians and specialists. This program has brought with it the recognition by practical engineers that the advertising and publication field is also one for specialists. Hence, the decision to place publishing of NAPRE's Annual in the hands of specialists in this field.

Technical Advertising and Publications Inc., Franklin Park, Illinois, has been appointed the advertising representative and publisher for the NAPRE Annual. NAPRE continues to designate INDUSTRIAL REFRIGERATION as its official organ and the members continue to receive that publication monthly as a benefit of their membership. Also, the Editor of the NAPRE OPERATING DATA BOOK remains the same, but Scott Cassell has been appointed Associate Editor, a move to use more professional editorial talents.

The membership's appreciation of this move on the part of the NAPRE officers will result in a much better publication than has been achieved in the past. NAPRE members also have shown enthusiastic approval of the new format introduced into the 1958 edition. The editorial content of the 1959 Data Book will continue to be a four-part presentation on Erection, Operation, Maintenance, and Supervision.

Asks Member Cooperation With Research Project

The new representative for NAPRE will need the cooperation of Association members in compiling certain desired statistics. In order to do an effective selling job it will be necessary to approach the members with regard to their buying habits, contract procedures and specification practices. The intent of the agency will not be to pry or obtain data for the purpose of promoting business for any special set of clients, but rather to prepare a convincing brochure on the market that can be found among NAPRE readers. This is the professional approach and NAPRE members are expected to give their whole-hearted cooperation.

Roy T. Burns

Northwest NAPRE Units Lead Off Series of Regional Conferences

▶▶EDUCATIONAL Conferences each Spring are becoming more popular with the NAPRE chapters. As president Roy T. Burns predicted in an earlier message to the NAPRE membership, more regional groups have become interested and several meetings have been tentatively scheduled. Pacific Northwest Regional Group was the first to confirm their dates and to publicize their program. Los Angeles chapter, which will host another Southwest Pacific Coast Conference a few weeks later, was the second to announce their intentions.

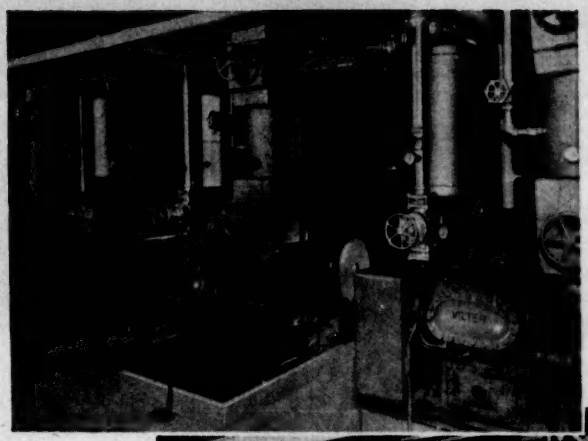
Third Annual Northwest Regional Conference will be held in Olympia Washington on April 25. Falconer Anderson, 4th vice-president, NAPRE, is general chairman. Bert Holmes, Olympia Chapter, is Northwest Regional Board Chairman; Archie Waterbury, Tacoma Chapter, is educational chairman; Charles E. Devine, Olympia Chapter, is secretary-treasurer; and, Bob Jones, Olympia Chapter, is publicity chairman.

Three Speakers Featured At Olympia Meeting

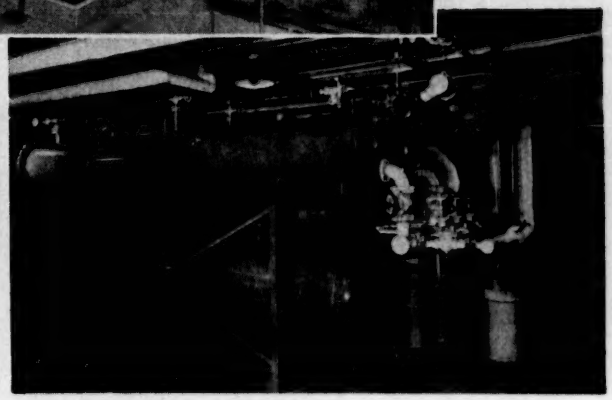
As customary at the one-day regional meetings, three speakers and a field trip are scheduled for the Olympia meeting. Since the meeting is to be held at the Olympia Brewing Company, the locale itself lends to a rather opportune field trip arrangement. The three speakers are Frank Knowles, manager, Belt Ice Company, Seattle, Chet Bell, Western Engineers, Inc., Portland, Oregon, and W. M. Fiander, The Texas Company, Seattle. Knowles, a founder-member of Washington Chapter No. 1, NAPRE, Seattle, will discuss Modern Trends in Refrigeration. Bell will address the group on Automatic Controls on Refrigerating Systems, and Fiander will discuss Characteristics of Oil in the Refrigeration Industry.

Los Angeles Hosts Second

Second Regional Meeting on the Coast will take place in Los Angeles at the Mayfair Hotel with California Chapter No. 2 as host. This will be the first regional meeting in a number of years on the Southwest-Pacific Coast. The meeting is scheduled for May 1 and 2. Members-at-large from Arizona, Nevada and Utah are expected to attend the Los Angeles Sessions together with delegates and representatives from eight California Chapters.



The three Vilter ammonia VMC compressors supplied to the Sealtest Dairy include two 8-cylinder and one 6-cylinder unit.



Included in the Sealtest installation are two 8-pass 24" diameter x 16 ft. Vilter shell and tube condensers. A 42" diameter x 16 ft. receiver is beneath them.

New Sealtest Dairy Depends on VILTER Refrigeration

● The new Sealtest Dairy plant, Milwaukee, Wisconsin, processes the entire gamut of dairy products—milk, high protein milk, chocolate milk, buttermilk, cream, half and half, ice cream, and cottage cheese. To keep these products "Sealtest Fresh" during processing and storage Sealtest depends on Vilter VMC compressors and condensers for refrigeration.

From experience in other plants, Sealtest knows the VMC compressor delivers an excellent return for each refrigeration dollar invested. Here's why: The VMC's compact design insures more capacity in less space • maintenance costs are lower because VMC components are interchangeable, there's no extensive downtime ever • built-in capacity reduction permits automatic operation at reduced loads with consequent power savings • spring loaded safety heads offer protection against refrigerant slugs. These and other VMC features guarantee dependable Dairy refrigeration at low cost.

Call upon the Vilter Representative or Distributor nearest you for full details on Vilter Refrigeration Equipment for Dairies.

Sold by Vilter Distributor, Burge Ice Machine Co., Chicago, Illinois

For these helpful Bulletins write to The Vilter Manufacturing Company, Dept. H-802, 2217 S. First St., Milwaukee 7, Wisconsin

Bulletin 707
Vilter Condensers
Brine Coolers
Heat Exchangers

Bulletin 817
VMC Ammonia
Compressors

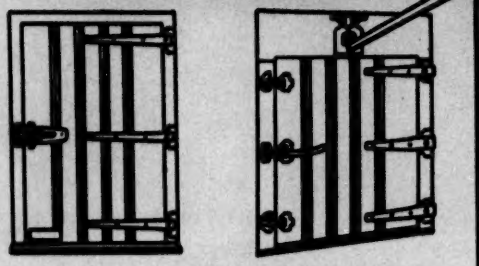
Vilter
REFRIGERATION and AIR CONDITIONING

THE VILTER MANUFACTURING COMPANY, Milwaukee 7, Wisconsin

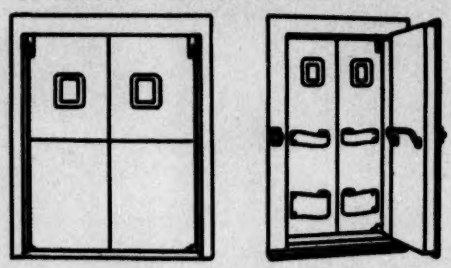
Air Units • Ammonia & Freon Compressors • Booster Compressors • Baudelot Coolers • Water & Brine Coolers • Blast Freezers • Evaporative & Shell & Tube Condensers • Pipe Coils • Valves & Fittings • Pakice & Polarflake Ice Machines

"Butcher Boy"

Since 1885

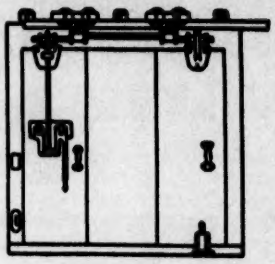


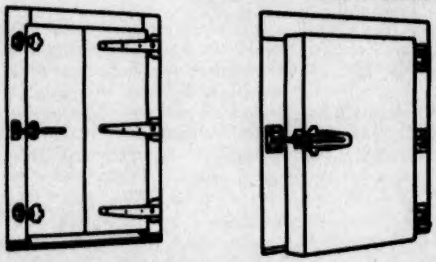
STANDARD COOLER-FREEZER DOORS



STANDARD VESTIBULE AND AUTO-CLOSE DOORS

HORIZONTAL SLIDING DOORS (Manual)





LOW TEMPERATURE INFITTING and OVERLAP

AUTOMATIC ELECTRIC DEFROSTERS

WITH THERMOSTAT CONTROL

CATALOGS AVAILABLE UPON REQUEST

FLEXIBLE RUBBER BATTEN DOORS INCLUDING STANDARD DOOR FRAME at no extra cost!

TYPE "TSH" WITH SEMI-HEIGHT MOUNTINGS

Especially adaptable for smaller door openings.

THEY PERMIT

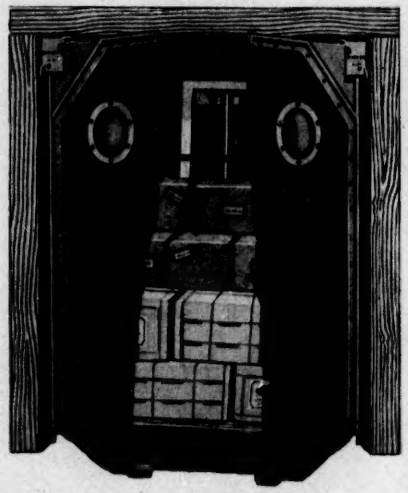
1. Safe passage of hand or power operated equipment with wider pallet loads.
2. Corner cutting with hand and power trucks.
3. Repeated abuse from impact of trucks at minimum damage and maintenance costs.

Model TSH battens are made of ¼" thick Neoprene (no grain) or of ¼" tough specially compounded rubber, reinforced with 2 layers of heavy cotton duck. Materials remain flexible even at extremely low temperatures.

Model TSH battens are furnished with No. 12 gauge galvanized steel jamb guards applied 4' 0" high with *no protrusions into the clear door opening.*

TYPE "FH" WITH FULL HEIGHT MOUNTINGS

Designed for wider and "straight traffic" doorways.



ADVANTAGES

1. Loss of refrigeration is held to a minimum.
2. Extra rigidity — tighter doorways.
3. Eliminates exposure and drafts near loading docks or at other openings.
4. Flexibility of battens permits repeated abuse and shock of mobile equipment contacts.
5. Permits movement of trucks and pallets at high speed in and out of refrigerated or other storage areas.

Model FH battens are made of ¼" thick Neoprene (no grain) or of ¼" tough specially compounded rubber, reinforced with 2 layers of heavy cotton duck. Materials remain flexible even at extremely low temperatures, and will not tear under most severe conditions.

BUTCHER BOY REFRIGERATO

Electro SAFETY-SLIDE HORIZONTAL DOORS

FEATURING STRUCTURAL SIMPLICITY

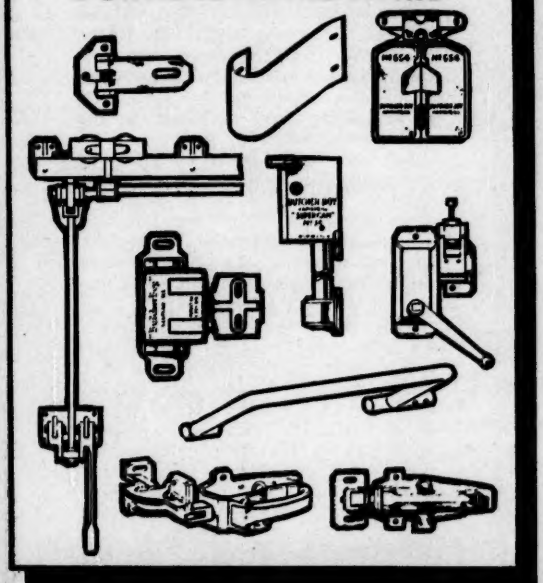
- **MECHANICALLY SOUND**
- **COMBINED "SPEED AND SAFETY"**
- **EXCLUSIVE AUTOMATIC SEALING "Gasket Assembly"**
- **SIMPLIFIED INSTALLATION**

Bi-Parting Horizontal Sliding Doors Available. CAUTION: Not recommended for use in cooler or freezer areas. Bi-Parting double horizontal sliding doors, of necessity, require gasket seals where the doors meet at the center of the opening. Hence, gaskets must be applied at "vulnerable" areas, exposed to contact by trucks or other objects which will rip or tear the gaskets, thereby destroying the necessary seal between the doors. *Field experience dictates this precaution against the use of bi-parting sliding doors.*

14 OUTSTANDING FEATURES

1 Overhead chain drive.
2 COMPACT—Electric Power Operator Assembly.
3 Heavy malleable iron Hanger Brackets.
4 Hyatt roller bearing Door Bracket.
5 Manual "Safety Release".
6 Automatic Sealing Assembly.
7 Automatic Electric Defrosters.
8 Concealed electric systems.
9 Safety Edge.
10 Complete Frame metal clad.
11 Special "SEAL" and "SILL" gaskets.
12 Defroster Drain Outlet.
13 Manual "Interior Safety Release".
14 "Roller-Type" Floor Wedges.

DURABLE HARDWARE



Fruit Belt Chapter Takes In Packers Meet

Report Made on Russian Refrigeration

BENTON HARBOR—Western Michigan has an alert NAPRE chapter, ready to grasp every opportunity to help members improve their knowledge of refrigeration and its applications. As an example, one meeting was held here with the Michigan Frozen Food Packers at which time Dr. C. L. Bedford and Dr. George Borgstrom of the Michigan State University, gave talks. Dr. Bedford's talk covered the growing of fruits in Michigan. Dr. Borgstrom's talk covered his trip to Russia, in the summer of 1958, at which time he attended one of the International Institute of Refrigeration conferences held on the Continent.

Dr. Bedford started his talk with the effects of spray materials and fertilizers on red tart cherries. He related that soft fruit is caused by the failure of a tree to get enough calcium. It takes three years for a tree to get this calcium through the soil. Possibly calcium can be sprayed on the trees, but this presents problems as the leaves do not absorb this material. Experiments show it is taken in through the trunk and branches as well as through the fruit.

Next, Dr. Bedford gave a rundown on his experiments with peaches in the 1958 season. He used five varieties of popular fruits grown in Michigan. They were all harvested in the firm ripe stage and then processed. The results were then evaluated. The next step was to take three lots of fruit and further ripen it in three ways. The first lot was ripened at room temperature, and the second lot was control ripened in a temperature of 75 to 80 F and the third lot was put in cold storage and cooled at once from 32 to 34 F and held a few days. The first two lots showed no significant difference. The third lot showed that brown rot was held down by as much as 50 percent.

Dr. Bedford felt that the quick shock of cooling inhibited the growth of brown rot spores. He also felt that holding this fruit too long had a detrimental effect on the quality of the finished product, but that normal storage periods had no effect whatsoever.

Russian Observations

Dr. Borgstrom told of his trip over, the fast air travel and its highlights. Moscow is very modern; most old structures have been torn down and replaced with new. Thousands of new homes are being built each month. One half million new apartment buildings have been built and all are equipped with refrigerators. No signs are allowed in Russia with the exceptions of three types of advertising; use taxis, drink tomato juice, and eat ice cream.

Tomato Juice consumption is being promoted from a health standpoint. They process much tomato juice in Russia, and are experimenting on varieties which will have more vitamins. They want the people to eat more ice cream because this is considered a sign of high living. They produce huge amounts of this product, having 47 different kinds and flavors, and three kinds of ice cream cakes.

Streets are mostly all six lanes and modern, being very well built. Up to World War II all the homes were heated with wood. Much of this lately has been converted to gas heat. There is much reading done in Russia, as the people want very much to become educated. Many more books are published each year than in the U. S.

Food Refrigerating

Describing refrigeration applications, Dr. Borgstrom said Russians have three categories to their processing and freezing.

Fish and fish products are first. They eat large quantities of fish. Half of their fish is frozen aboard ships at sea so it can be transported inland. The sea and its fish is a great distance from the center of Rusia. The inland seas and lakes are drying up. The fish production from these is but a small percent of what it was some years back. They have many fish processing plants. Freezing is used to hold the product until it can be proccessed. They also mix fish and vegetables together as a processed food.

How Costly is Downtime?

Here's what it costs every time a valve requires maintenance, shutting down your operation.

Total it yourself:

$_____ Sales value of the units normally produced during the period of shutdown.

$_____ Cost of the material and labor to correct the failure.

$_____ Idle time while operators wait for repair or work reassignment.

$_____ Added cost of supervision to "get back into production".

$_____ Cost of overhead and utilities which continue although production has stopped.

$ *Your Total Downtime Cost.*

Hubbell Valves may cost a little more, but their extra craftsmanship and dependability can save you *costly* downtime.

E. B. LaPlante
GENERAL MANAGER

HUBBELL CORPORATION
MUNDELEIN, ILLINOIS
BACK PRESSURE REGULATOR VALVES • DUAL PRESSURE REGULATOR VALVES • AUTOMATIC SUCTION STOP VALVES • SOLENOID VALVES • GAUGES • SAFETY RELIEF VALVES

"Castings to finished controls... every inch HUBBELL!"

Red meat is second of their processed and frozen foods. They freeze the meat in blocks and hold these blocks in storage until they want to use them.

The third food application is general processing and freezing of vegetables and fruits. Their vegetables are mostly all grown in the southern part of Russia. Frozen fruit industry is moving very slowly in Russia. They do not freeze much whole fruit. There are, however, many vending machines like our bottled beverage machines but they do not have carbonated drinks. These contain fruit syrups. This is like soda pop, but is all fruit juice and water. These machines do contain refrigerating units.

Dr. Borgstrom visited the Russian agriculture exhibition. It is miles in size, covering all phases of agriculture. One part of the exhibit was on meat and all of its different categories. The next is on fish and fish culture. They have many volumes in their libraries on fish culture. One exhibit is on vegetables and the last is on fruit.

The Russians compare themselves to the United States in all cases and try to surpass us. All the information they gave out seemed to be correct.

Bulk Freezing Forms

All of their freezing is in the block form. These blocks are thawed out and reprocessed later, mostly in the canned form. The ready made or prepared dishes are gaining in popularity. In fact, this industry is growing by leaps and bounds as many more housewives in Russia work than they do in this country, and they need the convenience of prepared foods.

There is a huge increase in the manufacturing of dry ice in Russia. The baby food industry is much larger than ours. They also produce many kinds of purees for adult consumption.

Food Distribution Weakness

However, their food distribution and sales are very backward. They have two types of distribution. One of these are the State owned stores in the cities. No other stores are allowed in the towns and cities. The second type is the Co-op's which are on the outskirts and in the country. Both State owned and Co-op's are very backward in their merchandising. Very little of their retail food is frozen. Mostly all is canned. They are now starting to build retail cabinets and freeze small packages.

Russia has standards for all of their food products. These standards are much higher than ours and are rigidly enforced.

Much new freezing equipment has been developed in Russia. Many new types of continuous freezers are being developed and built along with automatic freezer plants. They copy a great deal from equipment of others, having on hand all models of equipment from other countries. These they evaluate or try to improve on. Dr. Borgstrom also saw a continuous butter maker which they have developed. This seemed to work very well.

CONVEYCO

The NEW LEADER in BUNKER ICING MACHINES

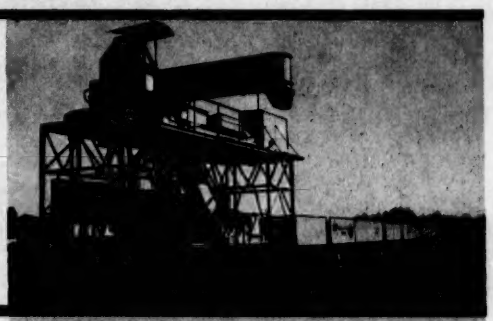
BRINGS YOU MAJOR SAVINGS

Great new improvements offered by Conveyco BUNKER ICING machines are producing tremendous savings in both initial installation and in operating costs for ice companies and railroads.

CONVEYCO machines with twin drum ice breakers reduce 300 lb. or 400 lb. blocks of ice to smaller bunker ice sizes with amazing uniformity and a minimum of wasteful fines. Fast two-man operation — one operator and helper — reduces costs. Write for complete money-saving story of "on-the-job performance" now.

RAIL MOUNTED ICER

A complete self-propelled unit that ices refrigerator cars from an adjoining track. Carries own ice supply. Eliminates breaking up of long trains to ice cars. Saves time and money.

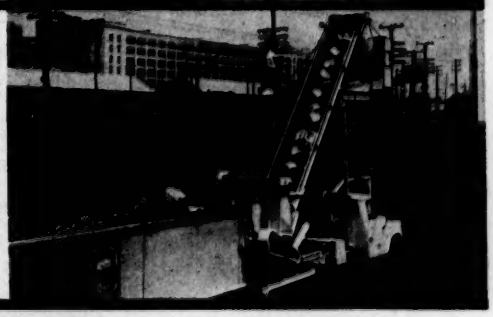


TWIN DRUM DOCK ICER

A fast two-man machine with automatic salting unit that ices and salts bunkers simultaneously. Ice is delivered to both hatches of a bunker at same time. Requires lighter dock construction than any other comparable machine — also is faster and more efficient.

TRUCK MOUNTED ICER

Speeds icing of cars located on sidings or in yards. Saves time of shuttling cars in and out of ice house docks. Also valuable where ice house is far from loading point. Used effectively for icing cold storage bunkers. Owners report savings of as much as 70%.



Put efficiency in your bunker icing operations and show profits with a Conveyco machine. ***Call or write for complete details today.***

CONVEYCO

THE CONVEYOR CO.

ENGINEERS AND MFRS. FACT. BLDG.

3260 E. Slauson Ave. • Los Angeles 58, Calif.

There's a Place in Your Planning For Kohlenberger Engineering

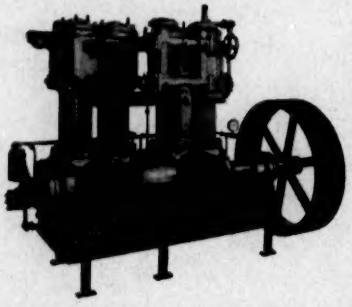
Kohlenberger's extensive manufacturing facilities and experienced staff make it possible to offer industry a *complete* service in the development and installation of heavy duty industrial refrigeration and air conditioning equipment.

For 36 years Kohlenberger Engineering Corporation has built its reputation on the dependability and quality of its equipment and the skill and integrity of its engineering staff.

Kohlenberger services include:

Equipment Manufacture
Refrigeration System Design
Plant Layout
Field Erection

When quality and dependability count ... contact Kohlenberger!



Kohlenberger 100 H. P. heavy duty industrial VSA ammonia or freon compressor. Other models available.

Write for free illustrated brochure.

KOHLENBERGER ENGINEERING CORPORATION

1610 Commonwealth Avenue, Fullerton, California

Cities in Russia have all their buildings built high up so they can get more people in a smaller space. According to Dr. Borgstrom the people gave very informative answers to all questions asked and seemed to be very friendly.

In attendance at the FF meeting were Barney Lambers, Lloyd Harris Pie Co.; Bill Likes, Silver Mill Frozen Foods; Lawrence Kreiger, Millburg Growers Exchange; Dorr Dean, Silver Mill Frozen Foods; Tom Dewhirst, House of David Cold Storage; M. S. Fuller, South Michigan Cold Storage; Glenn Schneider, Tony's Refrigeration; Charles Sill, Sill Farms Freezer Plant, and Mr. and Mrs. John Pfauth, Dwan's Home Canning Co.

—Dorr Dean.

Welding and Tubing For Hudson Engineers

New York City—Sooner or later most practical refrigerating engineers, including those on both sides of the Hudson River, have some problem that can best be solved by electric welding. Also, piping plays a big part in the careers of most refrigeration men. Therefore, the greater Metropolitan New York Chapter scheduled speakers on both subjects for one of its Fall '58 meetings.

Dave Thorson, Lincoln Electric Co., presented a film on the prevention of distortion in welding, and conducted an excellent forum on welding problems. Another film on the manufacture of stainless steel pipe and tubing was shown which detailed all the steps in manufacture, from the billet in the soaking pit to shipment of finished product.

Programs like the one described above are the type favored by this NAPRE chapter. These visual aids along with the experience of specialists in their fields, are some of the best ways that practical engineers learn more about their jobs and add to their own personal experience and education.

—Quaid Minich.

City Products Host To So. Ea. Penna.

Harrisburg—Continuing the policy of holding meetings in the various cities from which the chapter draws its members, the Southeastern Pennsylvania Chapter had the pleasure of meeting at the Harrisburg, Pennsylvania plant of the City Products Corp. late in 1958. This meeting also marked the installation of the chapter officers for 1959.

Following a short business meeting, and after the installation of officers, host of the evening, Kenneth (Dee) Johnson, conducted the group on a very detailed tour of the plant. This plant utilizes the Artic Pownall system for manufacturing ice and to most of the young 'blades' in the refrigeration industry, this system is story book material. As the tour was completed, members beheld a table of superior viands and all the necessary beverages, thanks to Mrs. Johnson, the wife of our congenial host. Every one agreed that malnutrition would never be a problem in the Johnson family.

—S. M. Rambo.

Directory Published By Chicago Chapter

Chicago—Attractive anh pocket size is the description of the Chicago Chapter Directory published late in 1958. Produced by the Directory Committee under the chairmanship of past chapter presirent Nicholas M. Downes, the roster lists the entire membership of the Chicago group, giving the mailing address, business and residential telephone numbers, and position and business affiliation.

Most important, however, is the fact that the Chicago chapter was able to publish the 20-page directory without an additional assessment to its members and without tapping the local suppliers and accessory dealers for any aid in the project. The chapter set out to prove that such a service could be made available to members without asking the much overdone donation from local businesses. The directory contains no advertising.

Introductory material to this publication includes a 5-point listing of what the Chicago Chapter NAPRE offers, location and date of its meetings, a list of the NAPRE services to refriierating service engineers at the national level, plus a listing of the officers, directors, advisers, honorary members and instructors in the Chicago chapter. A special page is devoted to local Industrial Members with the added comment "they support us—get to know them and their services". The last page of the directory is filled out with the safety slogan "Don't get hurt—somebody cares. Find time for safety".

Fall Summary

The Windy City Chapter has presented a program of wide variety to its members in the Fall '58. However, subzero temperatures and heavy snow have retarded attendance slightly. As mentioned on the president's page, this issue, the chapter featured a safety speaker from the National Safety Congress at the only December meeting.

November meetings featured Edwin C. Ward, district manager, United Cork Company as the headliner of the Nov. 25 meeting. Ward deviated from the somewhat expected insulation sales talk and conversed very informally with the members on his 27 years of insulation experience. Emphasized was the proper way to place insulation and consideration of its possible service, as well as existing conditions. Trade names were not mentioned by the speaker in the discussion although types of insulation were referred to for various applications.

The earlier November meetings featured a speaker on motor ontrols. Jim Farley, sales engineer, Allen Bradley Company, was the featured speaker on this topic.

Herb Rosen, H. A. Phillips Co. was the chapter instructor for the December and second November meetings. Bill O'Reilly, the chapter's recording secretary served as instructor at the earlier November gathering. —Bill O'Reilly.

Miss. Power Plant Tour

JACKSON—Highlight of the Fall program of Mississippi Chapter No. 1, was a tour of the Mississippi Power and Light Co. generating plant in Jackson, late in '58. The meeting got under way early in the evening with dinner being served at the plant. The chapter held a brief business session. Then the plant tour got under way.

Included in the visit was the inspection of the master control room. It was noted that each sub-station throughout the Western part of the state could be remotely controlled from this master point. The distribution system of the Mississippi utility is coordinated with that of the Arkansas and Louisiana Power and Light Companies so that in case of an emergency, each can supply the others critical and emergency power demands at any given time.

The Jackson installation of the Mississippi firm consists of three boilers and three turbine driven hydrogen cooled generators. The total output is 155,000 kw. Presently under construction is an additional unit which will bring capacity to 230,000 kw. This addition will also be steam powered. A lake is being constructed to be used in lieu of cooling towers, with the tower now in service to be eliminated when the lake becomes serviceable. Th new addition will be in operation by Spring 1959.

—ROY STEWART.

Tennessee Continues Basic Refrigeration

MEMPHIS—Fall programs for Tenn. Chapter continued review of the course BASIC REFRIGERATION with H. L. Todd and past national president Alvis J. Clay, doing the instructor chores. Although the course has been presented in its entirety before, the members, old and new, seem to get a lot of additional worthwhile information with each review.

At the December meeting, Todd reviewed the subject of compressors, using large pictures which showed cutaways of various York compressors. There were the vertical, single-acting compressors, the multi-cylinder more modern machines, rotaries and centrifugals. Todd explained the advantages and disadvantages and the oiling system of each unit. Special emphasis was placed on the application to which the various types of compressors are put.

At this meeting the special speaker was introduced as a visitor. He was Ralph Sweet from the St. Louis Chapter, NAPRE, a sales engineer for Armour Ammonia Division. Sweet made a few extemperaneous remarks about some of his observations in and out of the engine rooms in some of the various plants he has visited, and related some of the problems that NAPRE engineers had experienced in his recent contacts with them.

November meetings of the mid-South chapter dealt with expansion valves and evaporators. Todd went through his usual chalk talks in the way of review. With the expansion valves, he circulated a number of cut-away models among those members present. On the subject of evaporators, he described the various types and their uses, and the most efficient way to get full service from them.

Alvis Clay substituted for Todd at the October meetings, the latter being on the sick list at that time. The compression system of refrigeration and refrigerants were the two topics of the month. Discussion of refrigerants brought on considerable discussion as to the best refrigerant to use, Refrigerant 12 or Refrigerant 22 for air conditioning, Refrigerant 12 or ammonia for commercial refrigeration, and Refrigerant 22 or ammonia for industrial refrigeration. For the heavier duty applications ammonia seemed to be the most favored. The other refrigerants, of course, are most favored for air conditioning and commercial applications.—CHAS. CONLEY.

Northwest Loses Chapter Secretary

YAKIMA—Galen W. Sutton, recording secretary, Yakima Chapter, NAPRE, died as a result of a stroke he suffered on Sunday, November 23. Sutton was hospitalized after his car went out of control, glanced off a warehouse and smashed into a telephone pole on Yakima's Fruit Row. He died the following Tuesday at the Yakima Valley Memorial Hospital. The coroner's autopsy determined the cause as a stroke.

Sutton, an engineer for Yakima Fruit & Cold Storage Company for six years, had lived in Yakima all his life and attended schools there. He apparently had gone to the plant on Sunday in response to an automatic alarm system which was hooked up to his apartment. The plant is a 600-car apple storage, one of the largest on automatic operation in the Northwest.

Sutton is survived by two sons, a daughter, his parents, a brother and two sisters, all of Yakima. He had attended the chapter meeting held just the previous Wednesday.—ELMER TOOP.

Motor Protection For Kansas' Cities

GREATER KANSAS CITY—Factory representative D. O. Smith, of the Bussmann Manufacturing Co. presented a demonstration and talk on Motor and Line Protection by the use of dual element fuses at Greater Kansas City Chapter, NAPRE, in December. Smiths' demonstration presented very clearly the advantages of using dual element protection and very definitely pointed out the savings in time and costs that could be affected by eliminating needless burnouts. After Mr. Smith's presentation, several questions and individual problems were brought up by various members, and solutions to the problems were discussed by Smith and other members.

Lee Kenagy gave a brief account of his trip to the National Convention in Miami, pointing out that portion of the program put on by Witte Engine Works

(Continued On Page 29)

Not a Plaster or Paint... Adcote is a new concept in industrial wall finishes

The answer to your most perplexing surface finishing problem may be Adcote—the product of Swift's years of research and practical application. Take advantage of Swift's vast experience with adhesive products . . . consider how these Adcote characteristics will help you.

Characteristics of Adcote:

• Good Color Stability • Good Adhesion • Ease of Application • Moisture Resistance • Low Cost • Chemical Resistance • Vermin-Rodent Resistance • Mold Resistance • Fire Retardant • Washability

ONE TRIAL IS BETTER THAN A THOUSAND CLAIMS

A trial in your own plant will give the best proof of what Swift's Adcote Adhesive Finish can do for you. Return the coupon today.

Swift *To Serve Your Industry Better*

MAIL COUPON FOR FURTHER INFORMATION

Swift & Company
Adhesives Products Department
Chicago 9, Illinois

☐ Send descriptive bulletin
☐ Send information on trial order

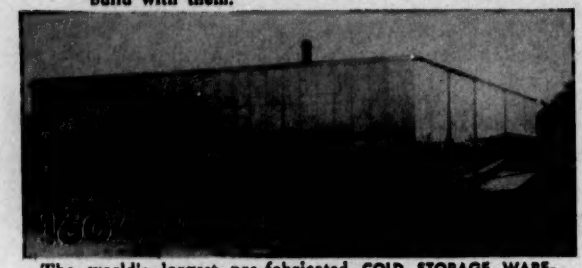
Name_____

JUST CLIP TO LETTERHEAD AND MAIL

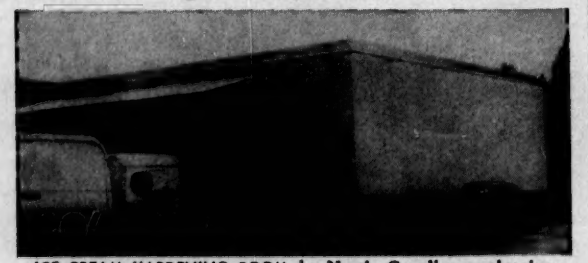
NAPRE News Continued From Page 27

VERSATILE!

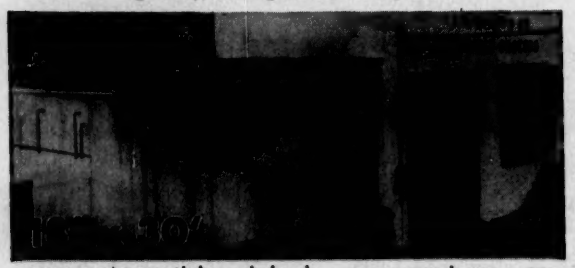
RECONY engineers, using patented RECO-FAB panels, have pioneered in the designing and building of cold storage rooms and hardening rooms, outside rooms and inside rooms, large and small, for low or medium temperatures. *Versatile* is indeed the word for RECO-FAB factory-built panels and the experienced RECONY engineers who design and build with them.



The world's largest pre-fabricated COLD STORAGE WAREHOUSE! Temperature range of minus 15° to minus 20°. RECO-FAB ceiling and wall panels were used throughout.



ICE CREAM HARDENING ROOM in North Carolina maintains temperatures of minus 15° to minus 20°. Designed by RECONY engineers, utilizing RECO-FAB panels.



FREEZER ROOM adjoins wholesale grocers warehouse — an economical installation using RECO-FAB panels. Designed by RECONY engineers.

Give RECONY engineers an opportunity to work with you on your next cold storage problem. We will assist with the planning and engineering design of both the building and the refrigeration . . . and furnish a complete job, delivered and erected if you wish!

Write or call and let us give you an estimate. Without obligation, of course. Use coupon *today!*

To: Recony Sales & Engineering Corp. Richmond 4, Virginia

Please quote on a cold storage room measuring

_____ X _____ X _____ for _____ °F.

MY COMPANY.....

MY NAME.....

ADDRESS.....

CITY.....STATE.....

Industry Meetings

Frozen Food Packing — Mar. 1-5
National Assn. of Frozen Food Packers
Conrad Hilton Hotel, Chicago

No. Car. Ice Manufacturing — Mar. 15-17
North Carolina Ice Assn.
Washington Duke Hotel, Durham

Corrosion Exhibition — Mar. 16-20
National Assn. of Corrosion Engineers
Sherman Hotel, Chicago, Ill.

Power Conference — Mar. 31-Apr. 2
Illinois Institute of Technology
Hotel Sherman, Chicago, Ill.

Northwest Ice Making — Mar. 19-20
Northwest Association of Ice Industries
Vancouver, B.C.

Southern & Georgia Ice Mfg. — Mar. 25-26
Southern Ice Exchange and Georgia Ice Mfg. Ass'n
Biltmore Hotel, Atlanta

Refrigeration Research — Apr. 2-5
The Refrigeration Research Foundation
Statler-Hilton, Washington, D.C.

Refrigerated Warehousing — Apr. 5-9
National Association of Refrigerated Warehouses
Statler-Hilton, Washington, D.C.

Mile High Ice Making — April 9-11
Mountain States Convention
Broadmoor Hotel, Colorado Springs

Meat Packing — Apr. 16-19
National Independent Meat Packers Assn.
Palmer House, Chicago

Old Dominion Ice Meet — April 21-22
Virginia Ice Convention
Chamberlin Hotel, Old Point Comfort, Va.

Environmental — April 22-24
Institute of Environmental Engineers
LaSalle Hotel, Chicago, Ill.

Practical Refrigeration Engineers — Apr. 25
Northwest Regional Conference, NAPRE
Olympic Brewing Co., Olympia, Wash.

More Practical Engineers — May 1-2
California Regional Conference, NAPRE
Mayfair Hotel, Los Angeles

Mechanical Contracting — Apr. 28-May 1
Mechanical Contractors Assn. of America
Shoreham Hotel, Washington, D.C.

Air Cond'g & Refrig'n — May 3-6
Air-Conditioning and Refrigeration Institute
The Homestead, Hot Springs, Va.

Fire Protection — May 25-29
National Fire Protection Assn.
Atlantic City, N.J.

Materials Testing — Jun. 21-26
American Society for Testing Materials
Chalfonte-Haddon Hall, Atlantic City, N.J.

Refrig'n & Air Cond'g. — Jun. 22-24
American Society of Heating, Refrigerating & Air Conditioning Engineers
Lake Placid Club, Lake Placid, N.Y.

NAPRE News Continued From Page 27

Company in Kansas City, Missouri. The program committee was advised that Witte Engine Company would welcome a visit from the entire group at any time. Kenagy didn't mention, but others noted that he had been elected Chairman, NAPRE's Board of Directors. John Muller was re-elected a Director.

New Officers

With Vice-president Crocker presiding in the absence of President Hale, the new officers for 1959 were elected. The slate, as presented by the nominating committee, was elected by unanimous vote with the exception of the recommendation of J. L. Edwards for Secretary. Edwards requested that his name be withdrawn as he felt he did not have the time or facilities to properly administer the job. The present Secretary's name was added to the list in place of Edwards. The new officers are listed elsewhere in this issue.

Greater Kansas City Chapter held its November meeting in the Federal Cold Storage Warehouse, the customary location. President Gregg Hale turned the meeting over to Gene Preston for the program. Don Mahaffey of Styro Products, Inc. presented the Dow Chemical Co. film on Styrofoam insulation. After showing the film, Don and Gene discussed some of the various characteristics of Styrofoam insulation and answered a great many questions about it. When the meeting adjourned, President Hale provided refreshments.

—JOHN G. MULLER.

Annual Membership Drive Dinner At Los Angeles

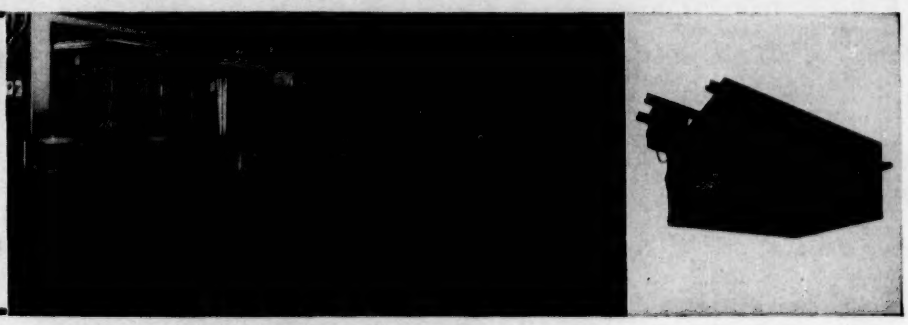
Chapter officers and guests posed for National Director George N. Paulick are: National Vice-president M. E. Bell, consulting engineer; Dinner Chairman Ed. L. Nelson, manager of plants, Union Ice Co.; Chapter Vice-president, N. P. DeSantis, assistant chief engineer, Adohr Milk Farms; Erkki J. Huttunen, Helsinki, Finland; Chapter President Guy R. King, instructor, Santa Monica Jr. College; Shafig D. Abu Hamden, Ammon, Jordan; Past Chapter President, Frank R. Elliott, and W. R. Burnett, Chairman, Membership Committee.

In Finland Huttenen had been affiliated with Mortensen & Co. installers of industrial refrigeration. Prior to coming to the United States he had also worked for the Sabroe Co. in Aarhus, Denmark, a compressor manufacturing firm. Huttenen's stay in the United States is indefinite, but he plans ultimately to return to Finland. Meanwhile he has become a member of Los Angeles NAPRE chapter, sponsored by Art Bender, president of Bender Machine Co.

Other foreign visitor Shafig D. Abu Hamden is a student at California Polytechnic College, San Luis Obispo, Calif., studying American refrigeration principles under Prof. Harold P. Hayes, the school's dean of engineering, who is national educational chairman of NAPRE.

Flooded ammonia installation engineered by Theis Refrigeration blast freezes 25,000 lbs. of chicken daily at -30° F.

For all refrigerants, including ammonia and brines.



POLO PRODUCE CO.

eliminates ceiling frosting and slugging hazards

Here's how Krack Automatic Electric Defrost Unit Coolers save time, trouble and temperature . . . The door on the unit automatically closes for each defrost cycle and energizes the heaters while blowers circulate the warm air within the insulated cabinet. Heat, held within the unit, isn't released into the freezer room to create frost. When defrosting is complete, the heat shuts off, the door opens and the refrigerating cycle is automatically resumed without affecting room temperature.

Engineers and contractors find these Krack defrost units cost less to install and require less maintenance.

Send coupon—for performance-packed bulletin today!

KRACK REFRIGERATION APPLIANCES INC

Manufacturers of freon, ammonia, flooded ammonia heat transfer equipment

REFRIGERATION APPLIANCES, Inc., 911 Lake St., Chicago 7, Illinois
Send free bulletin giving all technical details.
Name_____
Firm_____
Address_____
City_____ Zone____ State_____
8457

So Calif. Selects King To Head Conference

LOS ANGELES—Members of Los Angeles NAPRE Chapter approved a proposal on Dec. 3 which called for the chapter to sponsor an NAPRE Regional Conference in Los Angeles, May 1 and 2. Guy R. King, President, heads the meet.

Tentative proposals are for a 2-day conference, extending over Friday and Saturday, in order to afford more refrigeration men an opportunity to attend. It was also planned that the committee select dates which would not conflict with the Regional Conference to be sponsored by chapters in the Pacific Northwest, April 25.

Mortimer E. Bell, who returned to Los Angeles in 1958 after spending over eight years in the Northwest, suggested that a plan used successfully in connection with the Northwest Conference be considered by Los Angeles. Bell explained that the Northwest NAPRE chapters put the conference on a more intimate and friendly basis by having members of the chapter city in which the conference is held invite one or two out-of-town members to be their house guests over the conference weekend. That plan, Mr. Bell said, creates a most friendly atmosphere.

The following Automatic Valves are available for your defrosting systems:

HOT GAS SOLENOIDS
EVAPORATOR RELIEF
SUCTION SOLENOIDS
COMPRESSOR HOLDBACK
GRAVITY LEG SHUT-OFF

Write for our Catalog

REFRIGERATING SPECIALTIES CO.
3004 W. LEXINGTON ST. • CHICAGO 12, ILLINOIS

Technical Review

Hal Jarvis of Rcold Corp., an Industrial Member, directed the chapter's annual technical paper review at the Dec. 3 meeting in the Terminal Club. Los Angles Chapter annually devotes one educational session to a review of one or more technical papers, with the speaker privileged to select his papers.

Jarvis chose two papers on the same subject—which had been written by the same man, D. D. Wile, vice-president and chief engineer of the Recold Corp., but ten years apart! The paper most recent, entitled "Evaporative Condensers", was written and presented at the symposium on condensing methods at the semi-annual meeting of the American Society of Heating and Air Conditioning Engineers at Minneapolis, Minn., June 25, 1958. The second paper, "Factors in Design and Maintenance of Evaporative Condensers, Outlined", was written and presented before the Los Angeles Section, ASRE, in July, 1948.

Ten Years Changes Concepts

Jarvis gave a detailed analysis of the two papers and pointed out advances in evaporative condenser design and operating technique that had come about in the past decade. The two papers, he declared, which were written ten years apart, illustrate vividly how a competent refrigeration engineer grows with his industry and adapts himself to new techniques and developments as they occur. Some of the points and practices cited by the author in the 1958 article are in opposition to statements made in the article of ten years previous.

Mortimer E. Bell, 1957-58 chairman of the NAPRE Board of Directors, was presented with a Certificate of Membership in the Chief Engineers Association of South Florida. The presentation was made by George Paulick in behalf of Frank A. Sansome, president of the Florida Association.

Mistakes And Boners Feature

"What's Wrong With This Picture?" was the title of an educational program presented at the Nov. meeting held also at the Los Angeles Terminal Club. This type of program had won considerable acclaim when it was presented as the NAPRE contribution on the general program of the first technical conference and equipment show of the Association in the Shrine Auditorium, Los Angeles, in May, 1957.

As presented again with new problems and new diagrams or views on slides it was a wide-open, no-holds-barred type of refrigeration quiz program. Photographs and engineering drawings of refrigeration equipment and machines were projected, in which some design or erection fault was present. In each instance a system was defective in some way or some machine failed to function properly due to large or small oversight on the part of the installer or operating engineer. The Los Angeles NAPRE audience was asked by Moderator Ed L. Nelson "What's Wrong With This Picture?"

Engineers and Drivers Set

Nelson, southern division chief engineer or the Union Ice Co. and Regis Gubser, vice-president of California Consumers Corp., selected the slides and furnished the preliminary and, when necessary, the explanatory comments. Among the slides were a few that had been shown on the May 1957 program, but most of the 36 which projectionist George Paulick flashed on the screen depicted new problems which Nelson, Gubser, Harold Halls and Ed Maple had dug up for the meeting.

Audience Participation

The audience had an educational and entertaining time in picking out the flaws, and in most of the 36 slides shown some one in the audience was able to put his finger on the error without calling on Gubser, Nelson or Halls for an explanation.

That installations sometimes fail to function properly because of a small oversight rather than a major design error was illustrated in one slide showing a tank in which films are developed. Gubser explained that his sister, who is Mother Superior at St. Mary's Hospital, Tucson, Ariz., advised him that they were having trouble maintaining proper liquid temperature in a tank in which X-ray films were developed. She requested her engineer brother to stop off in Tucson the next time he was down that way and look the tank over.

Simple Things Count Too

Gubser arranged the stop-off in Tucson. Enroute, he said, he had made up his mind to look for some small or insignificant detail, for any major fault in the installation would probably have been discovered by the Tucson engineers whom the clinic had contacted.

The temperature in the tank could not be kept at desired temperature Gubser explained, because the thermostat was placed near the bottom of the tank. The constantly renewing and overflowing water prevented the thermostat from functioning and keeping the fluid at desired temperature. By moving the thermostat higher up in the tank, the problem was solved.

Safety Featured Also

Practically all types of refrigeration equipment was illustrated in the slides —compressors, condensers, coils, valves, refrigerant line hook-ups, solenoid valves. One photo showed a workman standing on the top of a steel tank using an electric welder against a steel beam.

"What's wrong with that Picture?" Nelson asked.

"He's not grounded properly* and is apt to get himself quite a shock," came the answer from half a dozen in the audience.

"Right", said Nelson. "What's wrong with this picture?" pointing to the next slide which showed a set of pumps mounted adjacent to a pair of compressors.

"It looks like there's apt to be trouble there because the pumps seem too small for that type of set up," came a guess which led to the right answer.

Is rapid order came other answers as slides were flashed on the screen by Paulick:

"The pipe for the ammonia oil drain should be of a larger ID."

"Those condensers are hooked up wrong."

"The piping to that water jacket must have been installed by a carpenter."

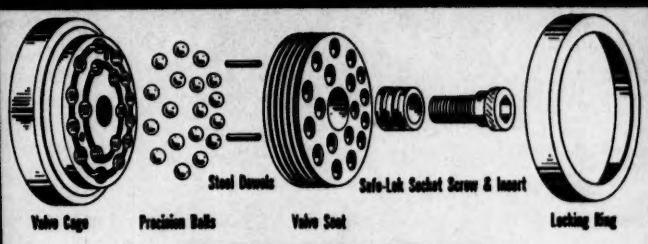
A few of the slides precipitated discussions that lasted 10 to 15 minutes as opinions on what should be done to correct a fault varied. On other slides opinion was unanimous and instantaneous as all agreed on the cure. The audience was "stumped" in very few cases, and then Nelson, Gubser or Halls, who had elected and filmed the machines, came through with the answer.

Convention Report

Guy King who with George Paulick the NAPRE convention in Miami, presented a complete report on educational, entertainment and plant visitation features of the Florida meeting. He also delivered to the Chapter President Mike Julius the plaque which the chapter had won in the 1958 large chapter membership drive. —FRED HERR.

*Meaning the equipment and/or work was not properly grounded, and the welder himself not insulated from ground.

You Can See The Difference!!!



BALL VALVE

TOTALLY UNLIKE ANY OTHER VALVE

Will Increase Performance of ANY Compressor!

For: Y-6½ x 6½

For: Old Style 9 x 9

For: Old Style 12 x 12

- 26% to 80% More Gas Passage
- Less Resistance
- Standardized Assemblies for Most Compressors
- Easy to Install
- Better Seating—Longer Life
- Eliminates Valve Failure or Breakage
- Discharge and Suction Valves in Stock for More Than 100 Different Compressors
- Immediate Shipment

For information on improving performance of your compressors, send us the name, bore, stroke, speed and serial number of each machine.

BALL VALVE COMPANY

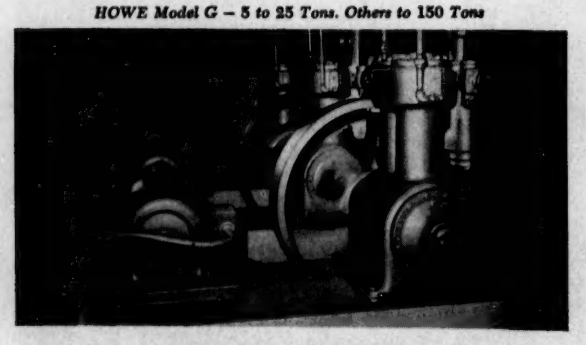
5512 OAK STREET • KANSAS CITY, MO.

when you buy equipment from

HOWE

Today, refrigeration costs are figured on an over-all basis. Even in your early planning, Howe engineers' 47 years of specialized experience can save you time and dollars in the design and installation of new systems or replacements. Howe equipment meets exact refrigeration standards, is correctly engineered to your individual plant. Hundreds of Howe installations attest to Howe's ability to lower costs *every step of the way*. In planning, in low first cost, in installation, in long efficient operation—"*it pays* to know Howe!" Consult us now!

HOWE Model G – 5 to 25 Tons. Others to 150 Tons



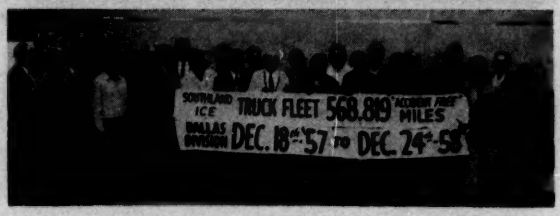
HOWE

ICE MACHINE CO.

2829 Montrose Avenue • Chicago 18, Illinois

Distributors in Principal Cities • Cable Address: HIMCO, Chicago

Engineers and Drivers Set



Recent dinners were given employees at Southland Corporation, Dallas, Texas, to honor them for a very fine safety record in 1958. The drivers achieved over 500,000 accident-free truck miles in over a year's time and the engineers and production employees got in over 60,000 man hours with no lost time employee injuries. In the photos above, W. F. Leonard, Jr., Director of Safety and Insurance, commended these employees. He attributed their fine safety record to constant alertness, job interest, and safety consciousness.

Denver Ice Firm Builds Conveyor-Car Icer System

▶▶ENABLING the City Ice Co. of Denver, Colorado to cut car icing costs, is a system designed and built by the company for icing refrigerator cars. ICE NEWS, published by the National Ice Association, in January, devoted a page to illustrations and description of this method.

Gerald Konrad is reported as the developer. Used for icing meat cars, the system consists of a moving belt conveyor for transporting crushed ice along the dock. The conveyor rides between rails which support a cab equipped with a plow and chutes for servicing cars on each side.

The belt is two feet wide, 500 ft. long and travels at 400 fpm. Crushed ice is delivered to the belt, from there to the plow, to the chutes, to the cars. A total of 20 cars, 10 on each side, may be iced at one time. It was reported that initial ice and salting is accomplished by two men at the rate of 18 cars per hour.

Spring Training For Ice Makers

▶▶ACCORDING to a publication of Carrier Corp., U.S. baseball fans required 6,000 lbs of ice per day in each major league ballpark. They estimate the cost of that ice from a commercial firm at $60.00 per day. Estimated cost of producing the same 6,000 pounds by means of a mechanical ice maker is given at $12.00.

Central Louisiana Sells

▶▶TWO ICE and cold storage plant facilities of Central Louisiana Electric Co. were sold to Alexandria Ice and Cold Storage, Inc. effective in January. The plant is located in Alexandria, including ice making facilities, cold storage, ice storage, general office building and cardock on the Mo-Pac RR. Sale price was $135,000.

Multi-duty Vessel

Safety Records at Southland

Trucker's Trophy to Southland Driver

Leon Grahl, right, a Denton, Texas, driver for Southland Corp. is presented with Knight's of the Road award by Sgt. Tommy Bryant, Texas Department of Public Safety, while Denton Police Chief Andy Anderson and a second state officer look on. The award is given annually by the Hobb's Trailer Company in cooperation with the State of Texas. Grahl was awarded the coveted trucker's trophy for releasing a Dallas man from the trunk of his car after the man had been robbed and kidnapped.

Memphis Purchase By Railways Ice

▶▶NEARLY 60 years in the ice business, Broadway Coal & Ice Co., Memphis, sold their ice division in January to Railways Ice & Service, Inc. W. W. Simmons, Jr., Broadway president, announced the sale but did not disclose the amount. It was reported that the ice operation will be continued by the railway ice firm, using former Broadway personnel.

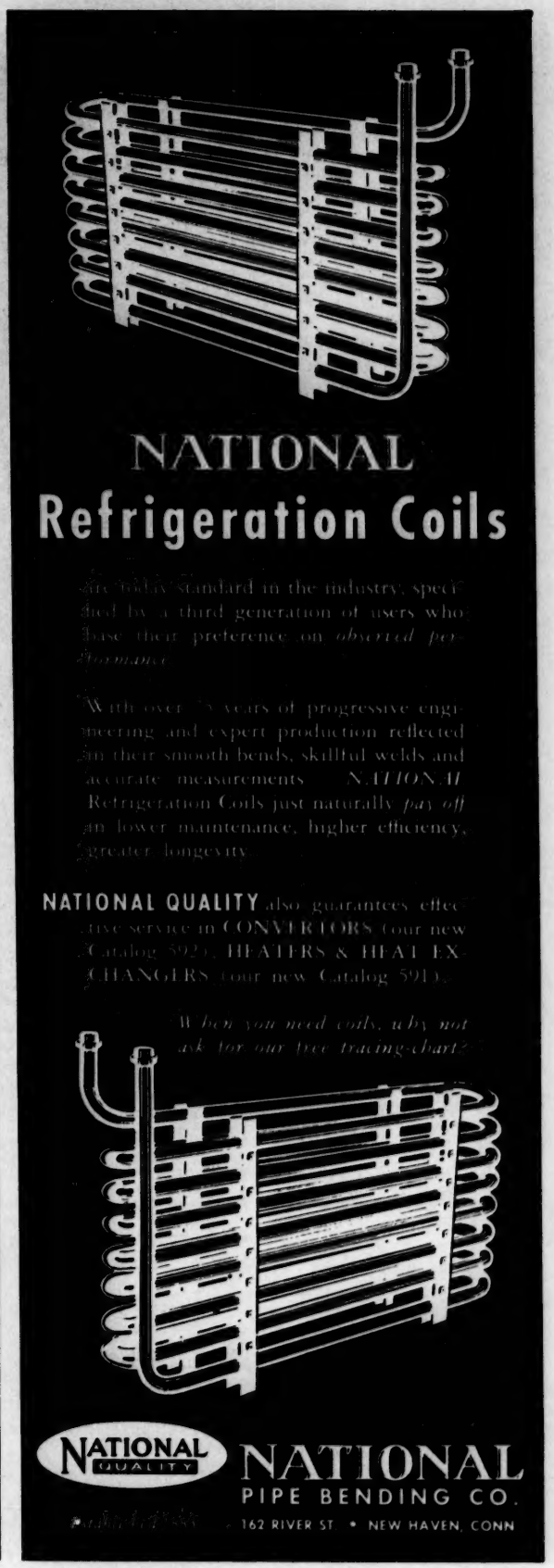
Biloxi Freezing Takes Crystal Ice

▶▶EFECTIVE February 1, the Biloxi Freezing Co. in that Miss. city took over operation of the Crystal Ice Co. Since that date all ice sales are handled by the Biloxi Freezing Co. and the two plants are continued in operation as cold storages. Ross Morgan, former owner of Crystal Ice, continues his other operations in New Orleans (Morgan Ice Co.), Gulfport (Crystal Ice), Meridan (Diamond Ice) and Amory (Morgan Ice).

Tri-State Meet At Cincinnati

▶▶SPEAKER talent featured at the Ohio-Indiana-Michigan 4th Annual Convention at the Netherland-Hilton Hotel, Cincinnati, Ohio on February 22 through 24 included the president of the National Ice Association, its secretary, and figures from Illinois and Wisconsin. Richard C. Muckerman, president of the National Ice Association of St. Louis, Mo., and C. P. Austin, secretary, from the District of Columbia were slated. Mayor John H. Glenn, Glenn Ice and Fuel Co., Beardstown, was the Illinois figure on the speaker program.

George W. Heath, Kartridg-Pak Division, Oscar Mayer & Co. was another out-of-state speaker. Guy W. Jacobs, former executive of the ice association made an appearance. Presidents of the three state associations involved in the meeting are J. F. Hardwick, Indiana, Edward J. Dager, Ohio and Douglas Taggett, Michigan. J. W. Twomey was host to the delegates' tour of the City Products Corp. plant in Cincinnati.



Research Projects:

Ice Cream Manufacturers Look At Market Research

▶▶PERHAPS NARW can chalk up another first in its business leadership at the annual meeting in April. Economic Research was an objective of last year's meeting at Dallas, with a Kansas firm being designated as consultant on Operations Research. Announced in January by the Inter-National Association of Ice Cream Manufacturers was a market research project.

Objective: More Consumption

Concerned with the inertia in per capita consumption of ice cream, the Board of Directors of IAICM authorized market research to determine the reason and a cure for that declining trend. A joint market research committee made up of representatives of the ice cream manufacturers and the Milk Industry Foundation met in Chicago in January to outline studies to be conducted. I. N. Hagan, IAICM President, and Hubert Garrecht, MIF President, are co-chairmen. Market research of other dairy associations, councils and container organizations were reviewed.

Management Council

To offer members new and important services, and to foster and encourage development and application of modern management techniques in all phases of the executive activity within the ice cream industry, the IAICM at their 54th Annual Meeting at Chicago in December established a new Management Council. The Council will plan and direct executive training activities through the affiliate Ice Cream Merchandising Institute. Mark A. Matthews, Carnation Company, Los Angeles; Edward K. White, H. P. Hoods & Sons, Boston, Mass., and James Balsley, I. N. Hagan Ice Cream Co., Uniontown, Penna., were elected to the three top executive positions of the new Management Council. Governing the Council will be an Advisory Board of 15 members including the three aforementioned executives.

Fairmont Foods Plans New Omaha Laboratory

▶▶PLANS FOR a 5,000 sq. ft research and development laboratory were announced at Omaha, Nebraska in December by Fairmont Foods Co. Work has commenced and the structure is expected to be completed by Spring. Purpose of the laboratory, according to a report in the U. S. SNOMAN, is to provide facilities for testing all of the company's present food lines for possible improvement, and the development of new products. The laboratory will serve the plant and branch locations of Fairmont operations in 26 states.

Hydrogen Plant At Edmonton Canada

▶▶WESTERN CANADA's first hydrogen plant will be built at Edmonton by Canadian Liquid Air Co., according to a report published in the TORONTO FINANCIAL POST. Hydrogen will be produced by electrolysis and compression collection system. Capacity wasn't announced.

Multi-duty Vessel For Canadian Fisheries

▶▶VESSELS of considerable versatility were reported on at the Annual Fisheries Research Board Meeting in Canada in January. Most important feature of one of these vessels was the installation of double-wall steel tanks for refrigerated seawater fish preservation, without capacity loss.

The fishing vessel was designed as a salmon troller but has been operated successfully as a seiner and a a fish packer. It can be used also for long-line halibut fishing, and crabs have been brought alive to port in the specially designed tanks. Purpose of the research was to prove that refrigerated seawater could be applied to a small vessel with little hindrance to its main function.

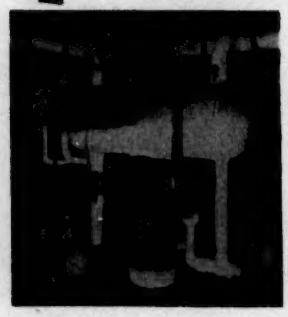
Side light to the report was the statement that refrigerated seawater had been used for refrigerating larger quantities of salmon for short-term holding at a cannery on the West Coast. Chilling whale meat by this method is also under research, and suitability of refrigerated seawater for Atlantic Coast fisheries is also to be assessed.

National Dairy Expands Glenview

▶▶RESEARCH and Development Division, National Dairy Products Corp. is expanding its laboratory in Glenview, Illinois. Construction of the 100,000 sq. ft. projects starts this spring.

It was reported by COMMERCE that NDP is shutting down its research facilities on Long Island and personnel will be transferred to the Glenview site. The new construction, on completion, will be one of the largest food research laboratories in the nation, occupying a 13-acre tract.

A RECIRCULATOR PUTS COILS TO WORK AND PROTECTS YOUR COMPRESSORS



- LIQUID RECIRCULATORS (No Pumps)
- FREEZER AIR UNITS
- HOT GAS DEFROSTING SYSTEMS
- CALIBRATED HAND EXPANSION VALVES
- CONSTANT PRESSURE, SOLID LIQUID FEED UNITS (No Flash Gas)
- ATMOSPHERIC SPRAY EVAPORATIVE CONDENSERS
- RECIRCULATOR-TYPE CHILLERS
- SELF-MONITORING SOLENOID VALVES
- PURGERS

For All Refrigerants

REFRIGERATION EQUIPMENT FOR MORE ECONOMICAL OPERATION

J. E. Watkins Co.
307 LAKE STREET MAYWOOD ILLINOIS

Glaciers in the News

TWO GLACIERS recently made the public press. A 3-ton chunk of a Norwegian glacier was used to refrigerate a cargo of perishable medicines for Dr. Albert Schweitzer's hospital in French Equatorial Africa. The idea was promoted by glass wool insulation manufacturers in Scandinavia and Western Europe to demonstrate the efficiency of their product.

The medicines were placed aboard a 7-ton truck with the "glacier refrigerating unit" and traveled from Norway to Africa over land except for the Mediterranean crossing where the entire truck piggy-backed it.

Glacier Preserved Whale

On one of the Spitzbergen Islands, another glacier pushed a block of ice to the surface in which was a 60-foot long specimen of a whale. Experts estimate the whale as having been *deep frozen* some 2500 years ago. The flesh was still sound.

Snow, Ice and Permafrost Research Establishment, USA, reported the first of the year that Army personnel had carved out a new 1200-ft tunnel in the Arctic ice gap. The tunnels are planned to provide storage, quarters, shops of maximum protection.

Yuma Seafood Market

CONSTRUCTION of a wholesale-retail seafood market, the first of its kind in Yuma, Arizona, according to the ARIZONA REPUBLIC, began in early February. There is nothing unique about the construction of the building but the operations of the firm will be rather unusual for an Arizona community. Gulf Seafoods, as the firm is named, will operate a daily refrigerated truck service fom Puerto Penasco, Mexico on the Gulf of California to Yuma. The firm will employ four fishing boats at the Mexican location.

Nashville Fish Firm

FISH DISTRIBUTION on the basis described above is unique to Yuma, but distribution via more conventional methods continues to expand in other areas of the U. S. Typical is the move last Fall by the Anderson Fish and Oyster Co. in Nashville, Tenn. That half-century old firm moved into a new plant constructed for it by Polar Cold Storage, Inc. Anderson took a long-term lease on an 800x200-ft, one-floor installation.

The firm employs eight trucks in the distribution of fish, oysters and fruits and juice concentrates in a 120-mile radius of Nashville. Expansion of services dictated the relocation. The firm had previously occupied smaller quarters in an existing building of Polar Cold Storage.

Phoenix Cold Storage

ARCTIC Cold Storage Co., Phoenix, Arizona, began operations shortly before the new year when a $200,000 building installation was completed. Floor space of 4500 sq. ft. was given over to cold storage of packaged frozen foods. Refrigerating machinery is located in the basement. Storage floor is at truck level and the plant is designed for fork lift and pallet handling.

Amsterdam Cold Storage

AMERIKA is the name of the refrigerated warehouse facilities in Amsterdam where a second addition was recently opened. Of nearly one million cubic feet, over two-thirds is refrigerated, providing a capacity of 6,000 tons of frozen product and 3,000 tons at higher levels of temperature. Construction started in 1952, according to the JOURNAL OF COMMERCE, and the last increment was completed in January 1959.

HENRY VALVE CO
ASME
NB National Board Certified
AMMONIA VALVES AND ACCESSORIES
Now available in a complete size range—flanged globe and angle valves with forged steel flanges in F. P. T., socket-weld and welding neck types. Other Henry products include globe and angle shut-off valves; ASME approved relief valves; dual relief valve assemblies; forged steel flanges, unions and fittings.
Write for Current Literature and Price Sheets:
Cat. No. 202—Ammonia Valves and Accessories
Cat. No. 73—Drop Forged Carbon Steel Fittings, Unions and Flanged Unions
Catalog 202
Catalog 73
HENRY VALVE COMPANY
3215 North Avenue, Melrose Park, Illinois (Chicago Suburb)
Cable: HEVALCO, Melrose Park, Illinois
VALVES AND ACCESSORIES FOR REFRIGERATION AND INDUSTRIAL APPLICATIONS

SHANK
AMMONIA
VALVES
Well Engineered—
Precision Built
ALL-STEEL GAUGE SETS with automatic shut-off of liquid in case of glass breakage.
RELIEF VALVES for Ammonia and Freon. Positive relief action. Pressures from 75 to 300 lbs.
Largest line of Ammonia All-Steel Bar Stock Valves in the industry. Completely Cadmium plated.
STOCKED BY LEADING JOBBERS
Write for Catalog and Prices.
CYRUS SHANK CO.
4650 West 12th Place, Chicago 50, Illinois

TRRF 15th Meeting Precedes AWA–NARW

▶▶SCHEDULED to meet immediately preceeding the American Warehousemen's Association–NARW meeting in Washington is The Refrigeration Research Foundation. Two dozen eminent scientists who constitute the Foundation's Scientific Advisory Council will be on hand to meet members and refrigerated warehousemen. All members of the refrigeration warehouse industry, TRRF members or not, have been invited to participate in the Scientific Advisory Council meetings. There is a nominal registration fee. The Industry Advisory Council, consisting of some 40 member firms, will be host to the cocktail party on Friday evening, April 3.

Array of Scientists

Heading up the scientists at the TRRF meeting will be Dean Emeritus S. C. Prescott, MIT, Chairman of the Foundation's Board, and Associate Chairman, Dean Emeritus W. A. Schoenfeld, OSC. Government scientists will be represented as well as those of university reputation. Charles Butler, Chief, Technological Branch, Fish and Wildlife Service, USDI, and Dr. Michael J. Copley, Chief, WURB, USDA, who was honored last Fall by the NFFDA, are among the government scientists expected.

Scientific Exhibits

In the past a number of the government agencies have had exhibits at both the TRRF and NARW meetings. The illustration here which pictures Dr. M. J. Copley with Albert I. Ris of NFFDA, although taken at the latter group's meeting last Fall, is typical of the department's displays at the Foundation's and Warehousemen's meetings. This exhibit featured continued investigations and results on TTT studies.

Dr. Walter A. Maclinn, Director and Secretary, TRRF, will be making his first debut in an annual meeting. Scientists employed by private industry such as Dr. R. C. Newton, Swift & Co., and Dr. C. G. North, Beatrice Foods Co., also members of the Scientific Advisory Council, are expected.

15th Anniversary

January issue of TRRF's INFORMATION BULLETIN, listed the 46 refrigerated warehouse companies celebrating their 15th anniversary of continuous relations with the Foundation. The BULLETIN saluted these firms which helped found TRRF, and made possible the continued scientific investigations that have aided the refrigerated warehouse industry and improved the industry's services to the public.

Meeting Modern Trends NARW Meeting Theme

▶▶MAJOR TOPICS for discussion at the National Association of Refrigerated Warehouses annual convention which will be held April 6 to 9 at the Statler-Hilton, Washington, D. C., were previewed late in January by a release from the Association's headquarters. Meeting Modern Trends is the theme of the meeting.

Included in the program is a warehousemen panel on the modernization of existing facilities, a warehousemen-truck panel on transportation, a panel on practical research, and other conferences and forums designed to help public refrigerated warehousemen meet the needs of perishable foods producers, packers and distributors. Key congressmen have been invited to take part in a legislative session.

Continuous Backers of TRRF Over 15 Years

Artesian Ice & Cold Storage Co.
St. Joseph, Mo.
Atlantic Company
Atlanta, Ga.
Beatrice Foods Co.
Chicago, Ill.
Brockport Cold Storage Co., Inc.
Brockport, N. Y.
California Consumers Corp.
Los Angeles, Calif.
Central City Cold Storage Co., Inc.
Syracuse, N. Y.
Central Service Co.
Des Moines, Iowa
Central Warehouse Co.
St. Paul, Minn.
Chattanooga Warehouse & Cold Storage Co., Chattanooga, Tenn.
Consolidated Cold Storage, Inc.
Baltimore, Md.
Crystal Ice & Cold Storage Co.
Sacramento, Calif.
Empire Cold Storage & Ice Co.
Kansas City, Mo.
Fairport Storage & Ice Corp.
Fairport, N. Y. and Webster, N. Y.
Fulton Market Cold Storage Co.
Chicago, Ill.
Great Lakes Terminal Warehouse Co.
Toledo, Ohio
Hudson Refrigerating Co.
Jersey City, N. J.
Hygeia Refrigerating Co.
Elmira, N. Y.
Kohrs Cold Storage Co.
Davenport, Iowa
Little Rock Cold Storage Co.
Little Rock, Ark.
Merchants Cold Storage Co.
Minneapolis, Minn.
Merchants Cold Storage & Warehouse Co., Providence, R. I.
Merchants Refrigerating Company of California, Modesto, Calif.
Merchants Terminal Corp.
Baltimore, Md.
Minneapolis Cold Storage Co.
Minneapolis, Minn.
National Ice & Cold Storage Co. of California, San Francisco
Noel & Co., Inc.
Nashville, Tenn.
Northwestern Ice & Cold Storage Co.
Portland, Ore.
Produce Terminal Cold Storage Co.
Chicago, Ill.
Quincy Market Cold Storage & Warehouse Co., Boston, Mass.
Refrigerated Food Services, Inc.
San Jose and Santa Clara, Calif.
Scobey Fireproof Storage Co.
San Antonio, Texas
Sodus Cold Storage Co., Inc.
Sodus, N. Y.
South Side Cold Storage Co.
Indianapolis, Ind.
Springfield Cold Storage Co.
Springfield, Mass.
Tacoma Ice Co.
Tacoma, Wash.
Terminal Cold Storage & Ice Co.
Dayton, Ohio
Terminal Ice & Cold Storage Co.
Portland, Ore.
Terminal Refrigerating Co.
Los Angeles, Calif.
Terminal Refrigerating & Warehousing Corp., Washington, D. C.
Terminal Warehouses of St. Joseph, Inc., South St. Joseph, Mo.
Union Ice & Storage Co.
San Francisco, Calif.
Union Storage & Transfer Co.
Fargo, N. D.
United States Cold Storage Corp.
Chicago, Ill.
West's Ice & Cold Storage Co.
Fond du Lac, Wisc.
Wichita Ice & Cold Storage Co.
Wichita, Kans.
Wisconsin Cold Storage Co.
Milwaukee, Wisc.

Warehouse Reading Matter:

Literature Available On Controlled Atmosphere

▶ REFRIGERATION Appliances Inc., manufacturers of Krack engineered prime surface brine units, Chicago, recently released a 4-page bulletin entitled "Controlled Atmosphere Refrigeration A Boon To Storage Companies". The bulletin describes Valley Storage and Produce Company warehouse system at Germantown, New York. It lists the design conditions specified by Frank Kedenburg, Jr., Highland, New York refrigeration consultant, and lists the equipment used to maintain four apple storage rooms of 12,000 bushel capacity under controlled atmospheric conditions.

Condensation Control

▶ CONTROLLING sweat damage, or control of condensation, was reported on in two publications in January. TRRF BULLETIN, page 5, reported on two related projects, while RESEARCH FOR INDUSTRY, the News Bulletin of Stanford Research Institute, reported on their first year's work in this field.

TRRF indicated that the Georgia Experiment Station four-year study has been completed under the direction and work of Dr. J. G. Woodroof and E. K. Heaton. Some two dozen products in cans were held in temperatures from minus 20 to 100 F, with varied relative humidities, numerous types of labels and several kinds of surfaces. It was found that condensation was prevented entirely when encased cans of food, in corrugated cases, were protected with a flexible or rigid barrier that fitted closely during the warm-up period.

The second project reported on by the TRRF circular, was that of Columbia University under the guidance of Dr. Carl F. Kayan and J. A. McCague. The studies of that institution are concerned with vapor transfer processes, association of heat transfer with condensation control, and other studies on heat transfer and vapor flow mechanisms.

The Stanford research under Dr. Michael Nelson, Russell C. Phillips and Raymond K. Cohen was a 3-way study. Three general methods appear to be the most technically and economically feasible for overcoming the conditions causing sweat damage. The first calls for coating the cans with a thin protective film immediately before labeling. The second method calls for better control of ventilation procedures. The third method considered practical was the use of unitized load handling—50 to 60 cartons mounted on a pallet, enclosed in a vapor barrier material. Protection is also suggested as being obtainable with sealed or insulated moisture containers or vans.

Jacketed Freezer Rooms

▶ READERS of the TRRF INFORMATION BULLETIN were tipped off on page 6 to a reprint which is available on Studies On A Jacketed Cold-Storage Room. More interest is being shown in this type of refrigerated storage facility. Most recent paper reported on is that by Joseph W. Slavin, John A. Peters, and S. R. Pottinger, Bureau of Commercial Fisheries, North Atlantic Technological Research, East Boston, Mass.

Chicago Speaker

Chicago Section, ASRE, has scheduled Dr. C. P. Lentz, Head, Engineering & Development Section, Division of Applied Biology, National Research Council, Canada, as a speaker on the subject of Jacketed Cold Storage Rooms for the Society's April 9 meeting. The meeting will be held in the Builders Club, Chicago, Illinois, according to John A. Hall, program chairman. Dr. Lentz' name has long been associated with the development of the jacketed room design.

New Zealand Lays Up Reefers

▶ A RELEASE from Wellington, New Zealand to the FINANCIAL TIMES in London, at the start of the new year, indicated that the laying up of refrigerated cargo ships after the peak of that country's export season, was on a scale unknown since 1930, a director of the New Zealand shipping company was quoted.

Water conditioning problems are individual, too...

BE SURE YOU GET THE WRIGHT ANSWER

While each water conditioning problem is different, they all have one thing in common: if not solved properly they can be costly in terms of maintenance time and production losses.

With the Wright Water Conditioning Service, your water conditioning is treated as an individual problem from start to finish. Without obligation on your part, Wright will make a scientific laboratory analysis of your problem, then submit a written proposal for its solution. After you adopt our recommendation, Wright will maintain a constant field and laboratory check to insure proper performance. Write, wire or call today.

HAVE YOU TRIED WRIGHT'S NEW FUEL OIL CONDITIONER? Here's a new Wright development that eliminates sludge in oil storage tanks . . . keeps screens and burners clean . . . insures maximum combustion efficiency. Write for complete details TODAY!

Wright CHEMICALS

WRIGHT CHEMICAL CORPORATION

GENERAL OFFICES AND LABORATORY

633 WEST LAKE STREET, CHICAGO 6, ILLINOIS

Offices in Principal Cities

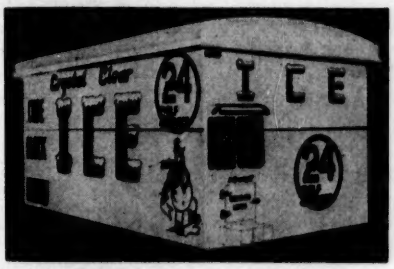
• Softeners, Filters and other external Treating Equipment

• Nelson Chemical Proportioning Pumps

K. G. BROWN

Presents

the NEW Multi-Screw VENDOR for 1959



Profit-Making Pacesetter in AUTOMATIC Ice Vending

More Sales + More Storage + Less Cost + Less Servicing

- An increased capacity of 40% over previous models.
- Multi Single Line Vending of any size package or block, regardless of the type of tie.
- These new vendors are now made in lengths up to 20' which will vend 268-10# bags plus 132-25# blocks out of the same delivery door, (400 Sales).
- Up to 5 various sizes of blocks or bags can be vended from this one vendor.
- Radical invention, trouble free, more storage space by design, lower operational cost.

NEW LOW COST 6' x 8' station vends 110-10# packages, or the "Junior", 3' x 7' station vends 90-10# packages using the new multi screw vendor.

ILLUSTRATED 9' x 16' Station vends 168-10# bags and 86-25# block.

BROWN MFG. CO., INC., MATTITUCK, N. Y.

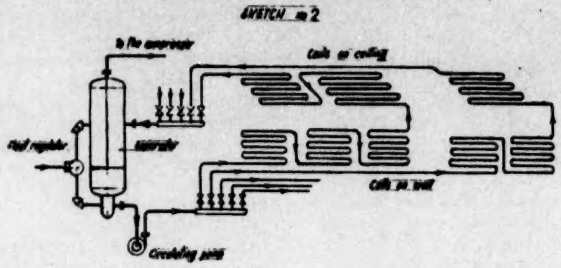
NAPRE QUESTION BOX

HAVE A QUESTION? Address it to Prof. Harold P. Hayes, Dean of Engineering, State Polytechnic College, San Luis Obispo, Calif. Answers appear monthly in this department on problems forwarded by NAPRE members. Comments from all readers welcomed.

H. P. Hayes

"We Get Letters . . . ." says a famous singer to introduce the request portion of his program on Saturday nights. The Question Box gets letters also. Just as that singer cannot cope with all requests, we cannot manage to reprint all answers received. However, this month a few were selected since they added somewhat to previous answers. — H.P.Hayes

More On MARINE RECIRCULATION



QUESTION: With ammonia circulation by means of a circulating pump we frequently let the ammonia circulate to the evaporators supplying same in the under part in order to discharge gas from the upper part. The supply pipe coming from the pump rises possibly in continuous pendency to the evaporators, the supply to the evaporators is parallel and the return pipe to the separator goes in continuous inclination to same.

In a plant on a ship we placed the evaporators, formed by 3/4" smooth pipe coils, in groups of coils connected in series on each supply of ammonia brought to the circulating pump; ammonia goes back to the separator through a 1-in. pipe. Evaporating temperature is minus 30°C.

We saw in this plant that ammonia returns almost suddenly back in big quantity to the liquid separator and fills it, keeping thus closed the float regulator for 40 or 50 minutes, while, when the float regulator opens itself, remains open for 50 minutes more; operation goes on in this way, filling and emptying in the same time also the liquid receiver of the condenser.

Please note that the pump, for space exigencies, is placed just under the separator, and thus with scarce liquid column on the suction side. We think that intermittence on return of liquid is due to the fact that as the coils are in a group in series and because of the ship's undulation which disposes the pipes alternatively with opposite inclinations, ammonia steam in the pipes pushes forward the liquid almost as long as it is exhausted, favored by the curves.

Now, before the above mentioned phenomenon can begin again, the coils, almost empty of liquid, must charge themselves again with ammonia and when same is sufficient to act as hydraulic valve on the dip pipes on the curves, back-water on the separator begins once more.

We should like to take, in order of importance, the following remedies:
1) To place a second pump for liquid ammonia circulators on an almost inferior altitude as the present pump, in order to make sure and intensify ammonia circulation in the coils.
2) To connect the vertically disposed wall coils in branch instead of in series, on the pump's liquid ammonia distribution.
3) To substitute the mechanical float regulator on the separator with an electric floater having a solenoid valve, in order to supply again more promptly the liquid when the level is going to remain insufficient for a long time.

We shall be grateful to you if you will arrange for giving us an answer to the following questions:

Do you agree with the explanation we gave about the phenomenon?

Do you think our remedies will be sufficient to eliminate the inconvenience and which one do you think is the best?

—C.D'O., Milan, Italy.

More On NEW SCIENTIFIC TERMS

QUESTION: New terminology, possibly product developments that I have spotted in news accounts or features in Industrial Refrigeration and other trade publications, uses words with which I am unfamiliar; for example, "filled epoxy resins".

Another name is "polymer". This apparently has something to do with the field of plastics. Can you tell what connection that has with the plastics found in thermal insulation and with the plastic used for pipe and tubing? —K.C.F.,D.C.

ANSWER No. 2: Those NAPRE members who are interested in a concise story on plastics in the industry would be interested in Columbia—Southern's CHEMICALS Vol. III, No. 3, Winter 1958-59. In that issue the article Bright Past and Brilliant Prospect of PVC on page 4, describes the early growth of the giant plastics industry showing how it was paced by versatile polyvinyl chloride.

It goes into the method of producing of vinyl chloride monomer and the polymerization process which produces PVC. The article is done in a magazine style which makes it very easy reading, gives the reader a practical idea of how PVC is produced, and its many applications.—J.R.K.

ANSWER No. 3: I read with interest all issues of INDUSTRIAL REFRIGERATION as they pass across my desk and took a particular interest in the problem posed by C.D'O., Milan, Italy on his problems in a liquid recirculation system.

The first item I noted was that suction line between the coils and the accumulator or low pressure receiver was only 1-in. pipe with an evaporator of minus 30 C. This seems extremely small even for a regular suction line at low temperature, much less a line for liquid recirculation system which must handle liquid and vapor; and, with a number of ¾-in. coils as shown on Sketch I, I feel that this may be the cause of the loading up and slugging back.

No mention is made of loads, lengths of coil, circuits, etc., and I would suspect the length of individual circuits are too long for the size of pipe used, either for a normal thermal valve feed or liquid recirculation. In many ways a liquid recirculation system might be considered as a hand expansion type evaporator which does not require adjustment with variation in load.

The fact that the low pressure receiver pumps out, leads me to suspect the pump is handling too large a volume. Even with the standard practice of circulating three to four times the designed quantity of liquid required, it would only require one pound of liquid per minute per ton which is extremely small quantity for a standard pump. The too large a quantity of liquid being pumped would require the metering valves of the coil inlets to be open too wide for effective evaporator operation.

Disagrees On Control

Final point I would mention is that I do not particularly agree with the use of a float operated switch and solenoid set-up for feeding high pressure liquid. It would be too easy for the flow to set to match the quantity being pumped resulting in an excess of liquid filling the shell when the slug returns from the evaporator causing liquid to be picked up by the suction to the compressor.

I would recommend the Questioner have the plant thoroughly checked with regard to pipe size, length of individual circuits, and quantity of refrigerant being handled relative to the load. I believe this is the source of his problem. **—Henry Furse, P. Eng., Toronto, Canada.**

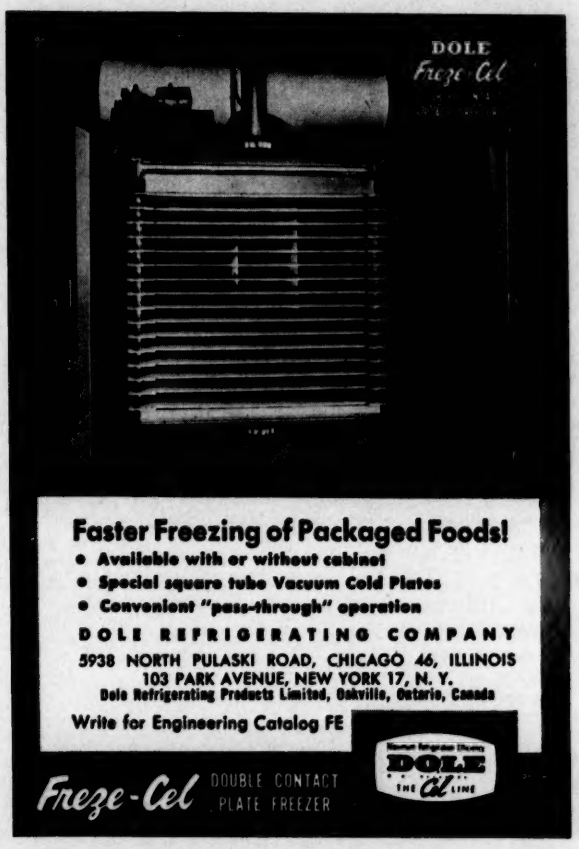
CO_2 Condensing

QUESTION: Some time ago at a meeting in Louisiana Chapter No. 2, NAPRE, I had an argument with other members about CO_2. I maintain that if the inlet condenser water is 88 F there is no refrigeration.

In the Central American banana run, we used to load bananas in Puerto Cortez, Honduras, and then go over to Puerto Barrios, Guatemala. We arrived about 6 or 7 a.m., stayed there all day until about 8 p.m. to pick up passengers. At times the seawater for condensing goes as high as 94 F. Hold temperatures would go up and the temperature reduction periods extended to 14 hours.

When we would get into our home Port, the Research Dept. would come on the ship to find out why it took so long to reduce the temperature. Well they told us to stay out of the Bay, out by Cape Three Point where the water was 84 to 85 F until about 5 p.m., then come in to get the passengers.

One member I had the argument with was also a refrigerating engineer with United Fruit Co. I maintain his thermometer was out if he did any refrigeration with water at 92 F.—J.J.J., New Orleans.


DOLE
Freze-Cel
Faster Freezing of Packaged Foods!
• Available with or without cabinet
• Special square tube Vacuum Cold Plates
• Convenient "pass-through" operation
DOLE REFRIGERATING COMPANY
5938 NORTH PULASKI ROAD, CHICAGO 46, ILLINOIS
103 PARK AVENUE, NEW YORK 17, N. Y.
Dole Refrigerating Products Limited, Oakville, Ontario, Canada
Write for Engineering Catalog FE
Freze-Cel DOUBLE CONTACT PLATE FREEZER
DOLE THE Cel LINE

REX
REX REFRIGERATION EQUIPMENT WILL PROTECT YOU AGAINST HIGH POWER COST!
REASONS FOR . . . High Power Costs in Refrigeration Plants.
SOLUTIONS Reduce High Power Cost with this Rex Equipment.
NON-CONDENSABLE AND FOUL GASES. Cause excess head pressure and reduced capacities.
REX AIR PURGER. Removes all non-condensable gases. Holds down head pressure.
WATER AND OIL IN THE SYSTEM. Lowers capacity by raising the boiling point of liquid refrigerant.
REX EXTRACTOR. Removes compressor oil and water vapors in the discharge line.
DIRTY CONDENSERS. Scale raises condensing pressure and lowers capacity.
REX TUBE CLEANING EQUIPMENT. Electrically driven. Cleaning time ¼ of hand scraping.
SUPER - HEATED REFRIGERANT DISCHARGE GAS. Keeps discharge pressure high — increases power consumption.
REX SUPER-HEAT EXTRACTOR. Removes super - heat, lowering discharge pressure.
IF YOU ARE INTERESTED IN LOWERING YOUR POWER COSTS AS MUCH AS 20% — WRITE . . .
REX ENGINEERING & SALES CO.
Oklahoma City, Oklahoma
BOX 5141
REX

NEWS OF MANUFACTURERS—At Home and Abroad

Recold Builds Mexican Plant

RECOLD DE MEXICO, S.A., a newly formed corporation, will manufacture Recold equipment in Mexico. Commencing in February, it is the first company of its kind to manufacture a complete line of commercial and industrial refrigeration and air conditioning equipment in that country. Hy Jarvis, President, Recold Corp. Los Angeles, described the plant as 20,000 sq. ft. in area and geared to manufacture equipment for the entire Latin American market. Engineering offices, dining, locker and bathing facilities are included. A model community for employees is planned for the future.

Decision to manufacture in Durango, Mexico was brought about by the demand for Recold products in Mexico and the Southern Hemisphere. According to Jarvis, 23 new supermarkets built by the Mexican government were Recold equipment, the Moctezum Brewing Co. used Recold coils when revamping, and the Banco Central de Reserve bank in El Salvador is equipped with the firm's air conditioning products. Bill Rahn, one of the first Recold Corp. employees, has been selected as plant superintendent for Recold de Mexico.

More Foreign Developments

EFFECTIVE January 1, 1959, Armstrong Cork Co. announced that it had combined all its activities outside the United States into one organization to be known as International Operations. Purpose of this move is to more closely coordinate subsidiary companies of the firm located outside the United States.

Merged into the new International Operations is the Export Div., The Armstrong Panam Corp., the home office staff of the company's foreign operations, and subsidiaries in Canada, England, Spain and Portugal. I. Wayne Keller, controller, has been named general manager of the new organization and will continue to serve also as controller. G. W. Warwick, foreign operations general manager previously, will be consultant for the new organization.

The Armstrong Contracting and Supply Corp. announced the acquisition of insulation product operations of Armstrong Cork Canada Limited. The business will be continued under the name of Armstrong Contracting Canada Limited with offices in Montreal, Toronto, Winnipeg, Calgary and Vancouver.

Two American Firms License Aussie Maker

SEVERAL refrigeration and air conditioning publications "down under" reaching the United States in January list Gordon Bros. Australia, as being licensed by two American firms to manufacture their products in that country. They are the Vilter Manufacturing Co. of Milwaukee, Wisconsin, and the Jamison Cold Storage Door Co., of Hagerstown, Maryland. Reports indicate that Gordon Bros. will manufacture Vilter ammonia compressors for high pressure and booster operation. It will also manufacture the full range of Jamison hardware for cooler and freezer doors.

Lightfoot—Linde

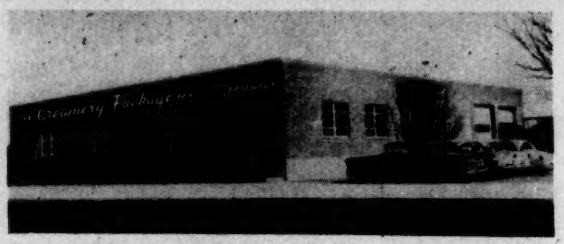
TWO WELL KNOWN names abroad were linked together late in 1958. The Lightfoot Refrigeration Co., Ltd. of Wembly, Middlessex, England and Gesellschaft Fur Linde's Eismaschinen A. G. of Wiesbaden, Germany, announced an agreement of mutual collaboration whereby the full range of products and technical resources of each company in the industrial refrigeration and air conditioning fields will be made available to the other. Such an agreement enables each firm to offer a most comprehensive range of equipment.

DuPont Price Index Lowest Since 1950

AVERAGE PRICES of du Pont products last year were at the lowest level since 1950 said John F. Daley, vice-president, in a February release. The firm's ability to hold prices was attributed by Daley to: increased manufacturing efficiency as a result of advanced technology and larger operating investments; and, the benefits of increased volume.

Refrigerants Included

Among the products offered to the refrigerating field which were cited by this officer, were the halocarbon "Freon" refrigerators which he stated would carry a price tag of $1.75 a pound if du Pont still made them by the old method. The actual price today, read the release, is only about 25c/lb. (One trade publication editor offered an opinion that competition also had a little something to do with the pricing.)



Creamery Package Boston Plant

BOSTON BRANCH, The Creamery Package Mfg. Company, which has been maintained in that city for 38 years, has just recently located in a new building in suburban Belmont. D. A. Pettee supervises the branch which offers better facilities for customer service through its new location.

While Creamery Package is better known nationally as a manufacturer of processing, refrigerating and conveying equipment for the dairy and food industries, the Company in recent years has become a leading source for skating and curling rinks.

Representatives For Instant Ice

NORTHWEST representatives for Instant Ice Machines manufactured by Liquid Freeze Corp., Oakland, Calif., were appointed recently. The Wilderman Refrigeration Co. is exclusive distributor and authorized service for Northwest Washington state. Representative of the entire state of Oregon is Peerless Pacific Co. in Portland. These representatives carry Instant Ice Machines and replacement parts in stock for dealer convenience, according to J. H. Lessard, mgr.

Grey Service Manager At Phillips Electronics

APPOINTED service manager, instruments division, Phillips Electronics, Inc., is Sidney Grey, Mount Vernon, New York. He has charge of the field service engineering staff and directs equipment repairs at the Norelco plant. Among equipment marketed by Norelco are gas liquefiers.

York Parts Depot on L.I.

REFRIGERATION Sales Company, Inc., refrigeration supplies wholesaler in Long Island City, New York, has been appointed by York Corp., subsidiary of Borg-Warner Corp., as authorized wholesale parts depot stocking York replacement parts for "Freon" and ammonia engineered machinery, York valves and fittings, York oil and accessories.

Sole "Freon" Agent

ONLY NATIONWIDE sales agent for "Freon" refrigerants is the Virginia Smelting Co. in Norfolk, Virginia, the E. I. du Pont de Nemours & Co. (Inc.) announced late in January.

PERSONS IN THE NEWS—Educators, Engineers, Manufacturers

Woolrich to Organize Turkish Univ. Research

CONSULTING Dean W. R. Woolrich, College of Engineering, University of Texas, has been appointed Consultant President of the Middle East Technical University at Ankara, Turkey. For the next year, it was learned by INDUSTRIAL REFRIGERATION in February, most of Woolrich's time will be devoted to organizing a permanent engineering and science educational and research program at the Turkish university.

The project is a joint undertaking of the United Nations and the Turkish Government. The Dean indicated that he and Mrs. Woolrich expect to be back at the University of Texas and their home in Austin in February 1960. In the meantime his address will be Office of the President, Middle East Technical University, Ankara, Turkey. All correspondence with the Dean will be addressed to the Ankara address until mid-January 1960.

Roop Opens Practice In Hospital Consulting

PROFESSIONAL engineer Daniel M. Roop opened his own business in February, offering consulting services in hospital design and engineering management. He resigned his position as administrative engineer of the Baptist Hospital, Memphis to enter private practice.

Roop was responsible for the professional and practical engineer training programs at the Baptist Hospitals which were reported in INDUSTRIAL REFRIGERATION in August 1958. He was the speaker on a similar topic at the NAPRE meeting in November at Miami Beach. Roop served as president of the Tennessee Hospital Engineer's Association, 1957-1959. He has also served on several committees of the Tennessee Hospital Association.

Carrier Changes At N.Y.

PROMOTION of Albert A. Giannini, NY District Sales Manager for Machinery and Systems Div., to position of Assistant Regional Manager, Northeastern US was announced recently by Carrier Corp. August Contardi will replace Giannini as District Sales Manager. Giannini, associated with Carrier Corp for 18 years, is a past president of NYC, ASHAE. Contardi is vice-president, MCA of NY.

Cal Poly Names McGrath To Head AC & R Department

EFFECTIVE the first of the year, James M. McGrath has headed the air conditioning and refrigeration department in the Mechanical Engineering School at California State Polytechnic College, San Luis Obispo. He succeeds Norman Sharpe who had resigned these administrative duties to return to full time teaching after 21 years as department head.

McGrath, an active consultant to the NAPRE Educational Committee and consistent contributor to the Question Box, heads the department in which he was a student in the mid-30's. McGrath had considerable experience as an operating engineer, shoreside and afloat, in the Marine and Naval Establishments, being a licensed or commissioned officer in each instance, before returning to Cal Poly as an instructor.

Hawkins to Europe

TEMPORARY additional duty assignment for John A. Hawkins, Assistant Chief, Requirements and Distributions Division, Headquarters, Military Subsistence Supply Agency, takes that engineer to Europe for approximately one month in February and March. Among some of Hawkins stops will be a new refrigerated warehouse plant for the U.S. Army in Germany. Hawkins, an honorary member of NARW and past National President of NAPRE, is located at the Chicago Headquarters of the Single Manager Plan for Subsistence within the Department of Defense.

Casey With Kartridg-Pak

MOJONNIER Associates, Division of Kartridge-Pak Machine Co. announced recently that Thomas J. Casey had been named general sales manager. George W. Heath, general manager and formerly manager of Oscar Mayer & Co. Ice Sales Department, made the announcement. Kartridg-Pak is a wholley owned subsidiary of Oscar Mayer. Mojonnier Associates Division manufactures and distributes aerosol filling machines and dairy equipment.

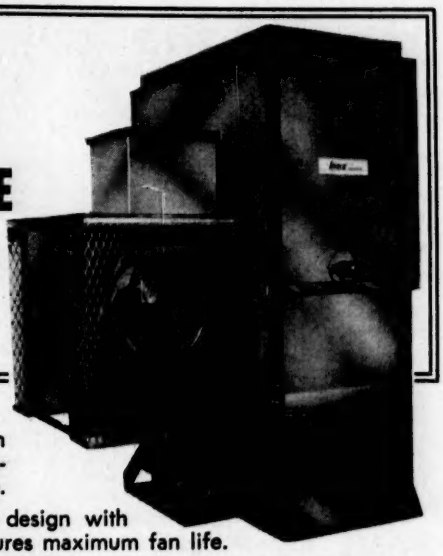
Casey is a graduate of the Industrial Management School, New York University, and the U.S. Merchant Marine Academy. He had previously been a district sales manager for a packaging machinery manufacturer.

New!

LARGE CAPACITY

EVAPORATIVE CONDENSERS

capacities up to 300 tons



RUGGED CONSTRUCTION—heavy welded construction and hot dip galvanizing assures long trouble free life.

LONG FAN LIFE—blow thru design with fan handling dryer air assures maximum fan life.

FULLY ACCESSIBLE—the eliminators, pump strainer and float valve are all accessible from the outside.

SUPERHEAT—separate, efficient coil for superheat removal available.

SAVES WATER
SAVES COMPRESSOR HORSE POWER
SAVES INSTALLATION COST

Imeco Incorporated — Write for Bulletin 958
Phone: JUniper 8-7117
3033 W. Belmont Ave., Chicago 18, Ill.

WORLD'S LARGEST MANUFACTURER
ICE CANS and BASKETS

- GALVANIZED
- WELDED
- RIVETED

Ohio Special Ice Cans are fabricated from finest quality Prime Galvanized Steel Sheets; formed accurate to size and straight for fast harvesting of ice.

Ice Can Grids or Baskets are designed to lift any number of ice cans and are Hot-Dip Galvanized after fabrication.

Write for Prices

OHIO
GALVANIZING & MFG. CO.

ANN ST., NILES, OHIO, U.S.A.

PIPE BENDING EXPERTS

Coils, Headers, Fabrications

Completely modern metalworking machines, plus over 38 years of "know-how", assure the finest work to your exact specifications. Proven specialists in custom bending in any form, any metal, even stainless steel.

May we quote on your next job?

CHICAGO NIPPLE MANUFACTURING CO.
1997 CLYBOURN · CHICAGO 14

Persons In The News (continued)

Fred Ophuls Terminates Consulting Practice

▶ PROMINENT and experienced owners and operators of refrigerating enterprises, manufacturers and contractors, as well, will be interested in the announcement from the consulting engineering firm of Fred Ophuls and Associates. Fred Ophuls advised INDUSTRIAL REFRIGERATION early in February that he would retire at the end of the month and that the business would be discontinued. It might be said that with this announcement, an important era in the history of refrigeration has been concluded.

Fred Ophuls was born in August of 1876. He graduated from Stevens Institute of Technology in 1897 as a mechanical engineer. He was successively employed in the shop and drafting department of the De La Vergne Machine Company, New York City, and the Vulcan Iron Works, San Francisco, California until 1905. He established his consulting business in 1911.

Some Noteworthy Jobs

Ophul's consulting enterprise was responsible for the design, modification, improvement and in some instances the operating and maintenance success of a large number of ice making, refrigerated storages and breweries. His firm also specialized in electric plants and steam-to-electric conversions.

For quite a number of years, the firm exercised engineering supervision over approximately a dozen cold storage and ice making plants throughout the United States for Anheuser-Busch, Inc. This included the reconstruction and addition to cold storage and ice making systems. Ice making plants in these installations ranged to 200-TR and the cold storage facilities to a million cubic foot each.

Another Anheuser-Busch project by Ophuls was the design and installation of one new power plant at St. Louis which included three 140,000 lb/hr boilers, two 5,000-kw turbo-generator sets, regulating system and distribution apparatus.

Merchants By Ophuls

Merchants Refrigerating Company of New York City was designed by Fred Ophuls. After the installation, his firm was retained as consultant to look after the installation of nearly 5 million cu. ft of cold storage. Also in New York, the Ophuls firm electrified a 1000-ton ice making plant for Jacob Ruppert, including an entirely new refrigerating plant and remodeling of 13 freezing tanks.

Since the end of prohibition, Ophuls has been involved in the design and and additions for a number of nationally known breweries, including The F. & M. Schaefer Brewing Co., Brooklyn, N. Y., P. Ballantine & Sons, Newark, N. J., Narragansett Brewing Co., Cranston, R. I., and C. Schmidt & Sons, Inc., Philadelphia, Pa.

French Freezing Plant

Ophuls also designed a fish freezing design for the French Republic. With a capacity for freezing 100 tons per day, and the necessary storage space, the plant was erected on the Isle of St. Pierre, Michelon. In 1954 he completed a manual covering the design of machinery equipment for cold storage plants for use in the various Air Force bases.

Fred Ophuls was a member of ASME and ASRE, being president of the later society in 1921. He has written a number of articles for REFRIGERATING ENGINEERING, INDUSTRIAL REFRIGERATION and revised chapters in the various ASRE DATA BOOKS.

Greer and FES Team Up Food Process Engineering

Watson

Wachter

▶ COORDINATED sales engineering, design and contracting service to the frozen food industry, confectioners, bakers, and other industrial processors is being offered by J. W. Greer Co. and Freezing Equipment Sales, Inc. An arrangement was concluded by the two firms and announced at the start of the new year. The Greer Co. is located in Wilmington, Mass. and FES at York, Pa.

J. W. Greer Co., manufacturers of continuous production machinery since 1917 has been producing equipment for the frozen food industry since 1953. Freezing Equipment Sales, Inc., has developed low temperature freezing systems for industrial processing. They represent the York Corp. as an industrial associate and are authorized to engineer, sell, install and service all York industrial refrigeration equipment. They are also national representatives of the Fuller Co., having exclusive sales rights on the FES-Fuller Rotary Booster.

The announcement that the firms will coordinate their sales engineering and contracting work was made by Richard Watson, division manager, Food Processing Equipment Div., The Greer Co., and George Wachter, vice-pres., FES.

Calpack Names Frazier

▶ CALIFORNIA Packing Corporation early in 1959 named William Frazier, representative in the Yakima District, Washington. Calpack's plant in Toppenish and Yakima employ more than 2,000 annually at the height of the canning and freezing seasons.

Ryan Heads Ice Sales At Oscar Mayer & Co.

▶ PROMOTED to manager to succeed George H. Heath, is R. J. Ryan, former assistant manager of the Oscar Mayer & Co. Ice Sales Division. Ryan has been with Oscar Mayer & Co. since 1942 serving in a number of capacities.

Holt On Allis-Chalmers C & A Compressor Div.

▶ APPOINTMENT of Wainwright Holt, Jr. as sales manager of centrifugal and axial compressors was announced by Allis-Chalmers early in 1959. Holt joined Allis-Chalmers in 1951 and had been a representative for petroleum and chemical sales in the New York district since that time. He is a graduate of Dartmouth College and in 1954 served as president of the New York Chapter of the Power Transmission Council.

Canadian Ice Machine Co.

▶ APPOINTED vice-president, director and general manager of Canadian Ice Machine Co. is Walter L. Pharo, formerly with York Corporation.

Morse On Rutgers' Staff To Succeed Maclinn

▶ NAMED CHAIRMAN, Food Science Department, New Jersey Aggie Experiment Station, Rutger University, is Dr. Roy E. Morse, Professor of Food Science. He succeeds Dr. Walter A. Maclinn who resigned last Fall to become Director, TRRF. The announcement came from Dr. William H. Martin, Director, according to the VEE-GEE MESSENGER, January 1959. Dr. Morse conducts the What's New in Meat Technology column, in MEAT Magazine.

Paul Beck Consults

▶ RETIRED as manager of the International Association of Ice Cream Manufacturers' Department of Statistics and Accounting (now the Department of Statistics and Information), Paul B. Beck will continue his accounting and installation work for the ice cream industry as a consultant. Mr. Beck's retirement became effective at the close of the 54th Annual IAICM Convention in Chicago, December 10-12. He was also the association's assistant treasurer, a post now occupied by veteran staff member, Ruth Stafford.

VAN RENSSELAER H. GREENE ASSOCIATES
CONSULTING ENGINEERS
VAN R. H. GREENE — NILS R. BERNZ

REFRIGERATION SPECIALISTS
COLD STORAGE—FOOD PROCESSING—INDUSTRIAL

ENGINEERING SURVEYS, APPRAISALS, COST STUDIES,
COMPLETE ENGINEERING DESIGNS FOR TEMPERATURE AND HUMIDITY CONTROL.

11 PARK PLACE **NEW YORK 7, N.Y.**

Classified Advertising

Position and Help Wanted

WANTED—Manufacturing Representative to sell ammonia valves. Sales representative should be handling compatible ammonia refrigeration products. Cyrus Shank Co., 4646 W. 12th Place, Chicago 50, Ill.

WANTED — Chief Engineer. Cold storage warehouse, eastern location; maintenance experience necessary. Salary range $6500 to $7500. Give experience, age and reference in first letter. Address Box JA-3, % Industrial Refrigeration.

USED EQUIPMENT—wanted & for sale

WANTED — 1 "Freon" evaporator condenser for low temperature room. Write giving BTU, CFM and price to Rucker Cold Storage Co., P.O. Box 2971, Greensboro, N.C.

WANTED—1000 galv. ice cans 11"x22"x51" I.D. in good condition. Contact W. E. Heiln, The Union Ice Co., 354 Pine St., San Francisco 4, Calif.

FOR SALE—650—11x22x52 O.M. ice cans, $3.00 each; good condition. 1—Frick compressor with 40 h.p. motor; 1—7¼x7¼ Baker compressor with 40 h.p. motor. All in operating condition. Crystal Ice Service, Inc., 1608 St. Peter St., New Orleans 16, La.

FOR SALE—4x4 York compressor, with motor, all on one base. One 30" freezer door. Write E. Niebling, 1546 St. Clair Ave., Mount Healthy, Cincinnati 31, Ohio.

FOR SALE—Complete WORTHINGTON refrigeration system, 1700 ton, fine condition, priced right, Midwest. Born Company, 80 East Jackson Boulevard, Chicago 4, Illinois. WAbash 2-3299.

FOR SALE — All equipment at Stein Brewery, Buffalo, including 1950 model Frick 11x10 ammonia compressor, with Westinghouse 150 h.p. 440 volt, 60 cycle, 3 phase motor and resistant type starters, installed; also Frick 10x10 2-cylinder, with Crocker-Wheeler 100 h.p. 60 cycle, 3 phase squirrelcage and starter; thousands of feet of 2" galvanized ammonia pipe in 10, 20 and 30 foot lengths; 4 Niagara 60 ton each evaporative condensers and other equipment. Write for free listing, or better still, make inspection at Stein Brewery, 797 Broadway at Smith, Buffalo, N.Y. Telephone CLeveland 8300.

FOR SALE
9x9 York Duplex 200 h.p. compressors 360 r.p.m.
350 h.p. Carrier water chilling unit.
(2) 100 h.p. & (1) 75 h.p. brine chilling units.
8x8 Frick 60 h.p. motor.
(2) 1½ h.p. Carrier cold air diffusers.
125 ton induced draft cooling tower.
34"x16'—10 pass shell & tube condensers.
Complete ice making plants 50 to 100 tons.
JOHN F. CARSON
A & Venango Sts. Philadelphia 34, Pa.
GArfield 6-2221

REFRIGERATION EQUIPMENT FOR SALE
Advise Us Your Needs
Use QUICKSEAL—stops brine tank leaks.
Use CLERTEMPICE—clears and tempers ice.
Born Company 80 East Jackson Boulevard.
Chicago 4, Illinois. WAbash 2-3299.

FOR SALE—Ammonia Compressor; 4 cylinder 3½x3½ Baker; receiver, oil trap, surge drum, Alco thermo expansion, solenoid valves. 75 h.p. slow speed motor. 1¼" two h.p. motor driven pump; 200 gpm, 347 foot head centrifugal pump. Betz Refrigeration Co., 2917 Tomahawk, Kansas City, Mo.

WANTED—Ammonia compressor 160 to 200 ton capacity with or without accessories, slow speed synchronous 3 phase 2300 volt motor, and starter if available. Reputable make in good condition. Brayer Electric Co., 286-12th St., San Francisco 3, Calif. MArket 1-1761.

FOR SALE—York 4 cylinder ammonia machine; 4.8 cubic ft. per rev. Used 6 months, cost new $38,000.00 sell for $13,000.00. Other used industrial refrigeration, motors and controls to 500 h.p. Drake Electric & Refrigeration, 405 S. 8th St., Marshall, Ill.

FOR SALE—AMMONIA EQUIPMENT
3—15 ton complete Frick ice making plants, new, in crates. No air system; sold as used.
1—45 ton Niagara Aero evaporative condenser.
1—80 ton Niagara Aero evaporative condenser.
2—10"x10" 4-cyl. York duplex DC to 225 h.p. motor.
1—9"x9" 4 cyl. York duplex DC to 150 h.p. motor.
2—9"x9" 2 cyl. York DC to 75 h.p. motors.
2—10"x10" 2 cyl. York DC to 125 h.p. motors.
1—9"x9" 2 cyl. Frick compressor.
1—7¾"x5" 2 cyl. Frick booster.
1—3"x3", 1—4"x4", 2—5"x5" condensing units.
3"x3". 4"x4". 5"x5". 6"x6" compressors.
11x22x51"—300# ice cans; also 11x22x47".
Ice plants, 25 to 100 tons. York & Frick.
ENTERPRISE EQUIPMENT CORPORATION
328 Bryant Ave. Bronx 59, N.Y.
Cable "ENTREMA" Phone DAyton 8-2121

there's this . . .

there's this . . .

and then there's

RefrigiWear

. . . THE EFFICIENT INSULATED CLOTHING FOR INDUSTRY

- ***Protection from 50° below to 40° above***
- ***Featherweight***
- ***Non-bulk***

Only Refrigiwear materials and construction can give cold-room workers complete comfort *plus* complete freedom of movement. That's why Refrigiwear Insulated Garments are in daily use in over 4,000 plants around the world. Sold on unconditional guarantee as to fit and performance. Immediate delivery on coats, jackets, coveralls, vests, liners, underwear . . . in all sizes, for men and women.

SEND FOR COMPLETE CATALOG AND SPECIAL INDUSTRIAL PRICE LIST

REFRIGIWEAR CLOTHING CO., 202 E. 29th St., N. Y. 16, N. Y.

Please send details on Refrigiwear Insulated Clothing.

Name_____ Type of Business_____

Cold Room Temp. Range ____° to ____° Blower ☐ No Blower ☐

Company_____

Address_____

City_____ Zone____ State_____

A

ADVERTISERS

Allied Chemical Corp., General Chemical Div. 2
Armour & Co. .....Inside Front Cover
Armstrong Machine Works 1

Ball Valve Co. 31
Brown Mfg. Co., Inc., K. G. 35
Butcher Boy Refrigerator Door Co. .22 and 23

Chicago Nipple Mfg. Co. 42
Classified Advertising 43
Conveyor Co., The 25
Creamery Package Mfg. Co., The 5

Dole Refrigerating Co. 39

Freezing Equipment Sales, Inc. .....Inside Back Cover

Greene Associates, Van R. H. 43

Henry Valve Co. 35
Howe Ice Machine Co. 32
Hubbell Corp. 24

IMECO, Inc. 41

Jamison Cold Storage Door Co. ..Back Cover

Kohlenberger Engineering Corp. 26
Kramer Trenton Co. 7

National Pipe Bending Co. 33

Ohio Galvanizing & Mfg. Co., The 42

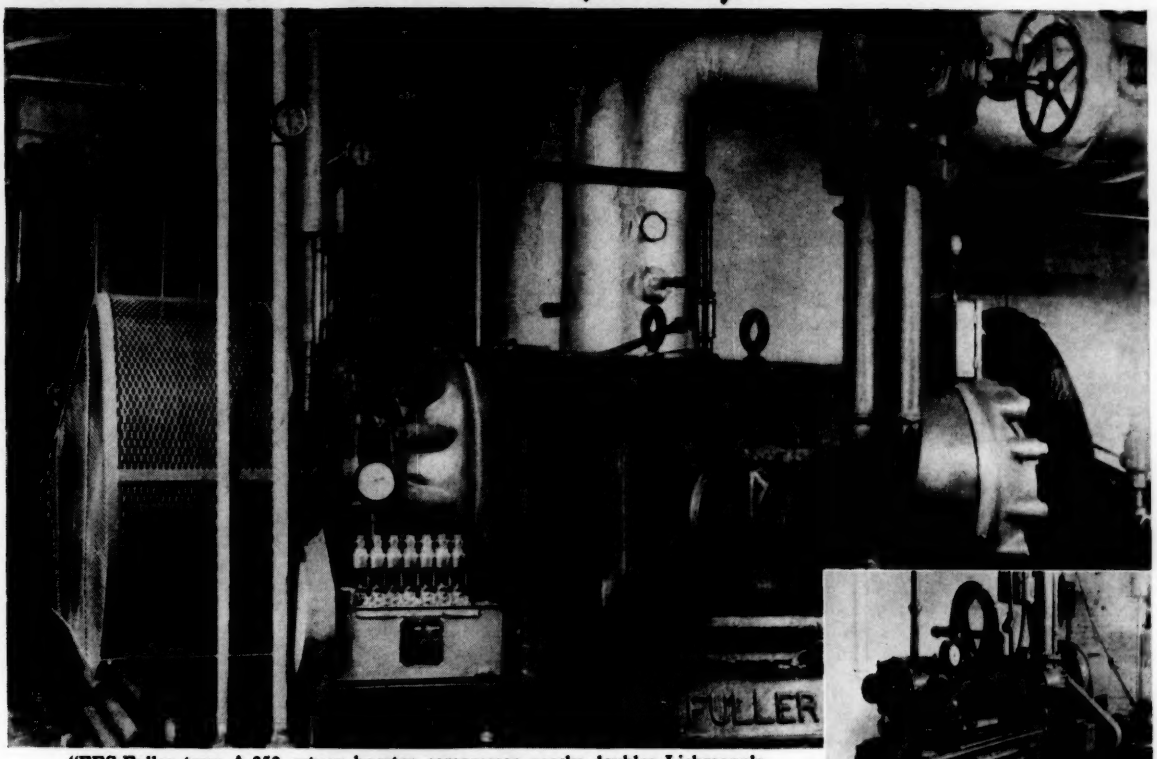
Recony Sales & Engineering Corp. 28
Refrigerating Specialties Co. 30
Refrigeration Appliances, Inc. 29
Refrigiwear Clothing Co. 44
Rex Engineering & Sales Co. 39

Shank Co., Cyrus 37
Swift & Co. 27

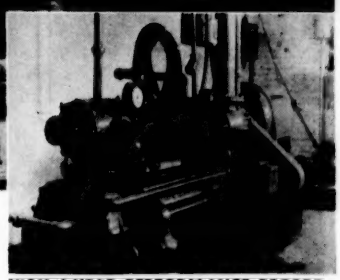
Vilter Mfg. Co., The 21

Wanted and For Sale Advertising 43
Watkins Co., J. E. 34
Wright Chemical Corp. 37

More Proof of FES-FULLER *Superiority*



"FES-Fuller type A-250 rotary booster compressor nearly doubles Liebmann's freezing capacity," says Herb Liebmann, Jr., of Liebmann Packing Co. Adding 100 tons of refrigeration to 110 tons supplied by existing reciprocating booster, vibrationless rotary takes light foundation—which cuts this installation cost 25%.



HIGH 6-YEAR PERFORMANCE RECORD of this Fuller C-50 rotary compressor supplying plant air led Liebmann to investigate and buy FES-Fuller rotary booster unit. Design principle is identical with that of booster units, using only 3 moving parts: rotor, sliding vanes, and bearings.

"VALVELESS" ROTARY BOOSTER COMPRESSOR CUTS INSTALLATION COST 25%

Designed without suction or discharge valves, an FES-Fuller rotary booster compressor can work more efficiently at low pressure and high gas volume than comparable types. Thus, in a two-stage system like the one at Liebmann's Green Bay, Wis. plant, even very low pressure differences can't hinder its output. Efficiency actually *increases* when system pressure drops.

Liebmann discovers extra benefits. "We wanted a compressor to handle high volumes of low-pressure suction gas in the primary phase of our recently expanded freezing system. The machine had to be rugged and trouble-free, keep original capacity for life, and be easy to install," states Herb Liebmann. Besides meeting these specifications amply, the 100-ton FES-Fuller unit takes only 10 x 12 feet of engine-room space, and cuts estimated installation cost by 25%. A light foundation is all that's needed, since rotary compressors work without vibration.

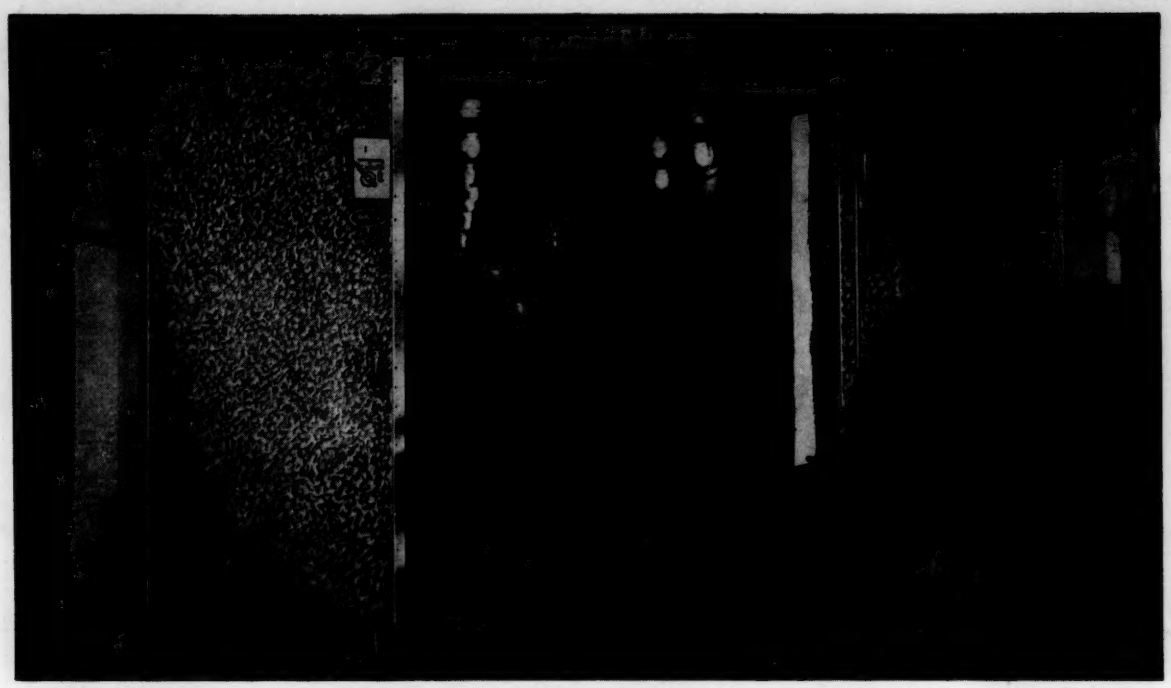
Advantages like these can be yours with FES-Fuller rotary boosters. Their simple, compact design gives big savings in space, power, money and maintenance time. They can run with almost no supervision. Patented jacket cooling of FES-Fuller rotaries eliminates freezeups. Consult FES-Fuller on the best ways to add to your freezing capacity or to design profitable new facilities. Freezing Equipment Sales engineers are always ready to help you. Write today for information and detailed literature on FES-Fuller rotary booster systems.

FES FULLER 1343 C-342

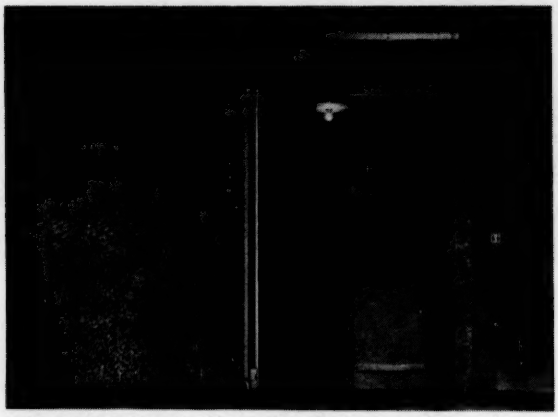
FREEZING EQUIPMENT SALES, INC., 1405 N. DUKE Street, YORK, PA.

Qualified distributors in principal cities

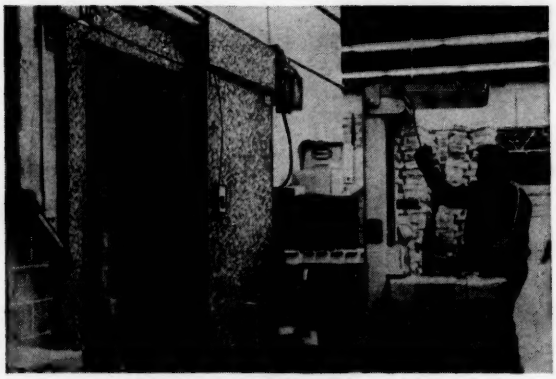
LOW TEMPERATURE FREEZING EQUIPMENT



FAST, AUTOMATIC OPENING and closing speeds all cold storage room traffic



SAVES REFRIGERATION. *Electroglide eliminates costly loss of refrigeration with fast opening and closing.*



CONVENIENT, SIMPLE OPERATION *saves time and effort for personnel, increases plant efficiency.*

Jamison *ELECTROGLIDE** features save time and labor... speed warehouse operations

• Jamison's new Electroglide Door is now in operation in a wide variety of installations throughout the country and is proving in actual service that it will deliver extra savings and economy:

Low Maintenance

Level ride—no gasket drag • No shock closure • Reduction gear enclosed, sealed in oil • Frostop prevents icing, saves gaskets

Safe Operation

Full height safety door edge, sensitive full travel of door • Rear emergency release • Emergency controls for manual operation

Greater Economy

Minimum loss of refrigeration • Camlok compression seal for positive gasket contact • Faster operation, increased volume

See for yourself how Electroglide can increase the efficiency of your own operations. Write today for interesting booklet to Jamison Cold Storage Door Co., Hagerstown, Md.

*Jamison trademark

JAMISON

COLD STORAGE DOORS